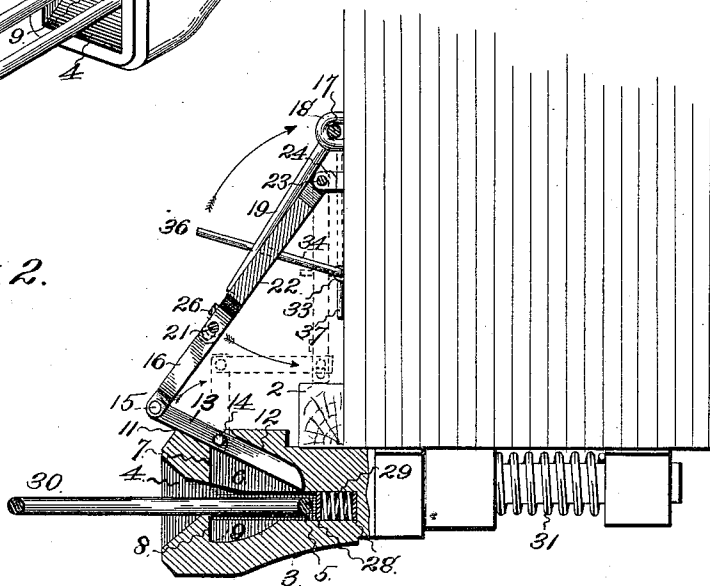


2 Sheets—Sheet 1.

No. 562,024.

Patented June 16, 1896.

Inventors.

R. W. Poteet and E. Fitzgerald.

By Higson & Higson Attys

(No Model.)

2 Sheets—Sheet 2.

R. W. POTEET & E. FITZGERALD.
CAR COUPLING.

No. 562,024.

Patented June 16, 1896.

Fig. 3.

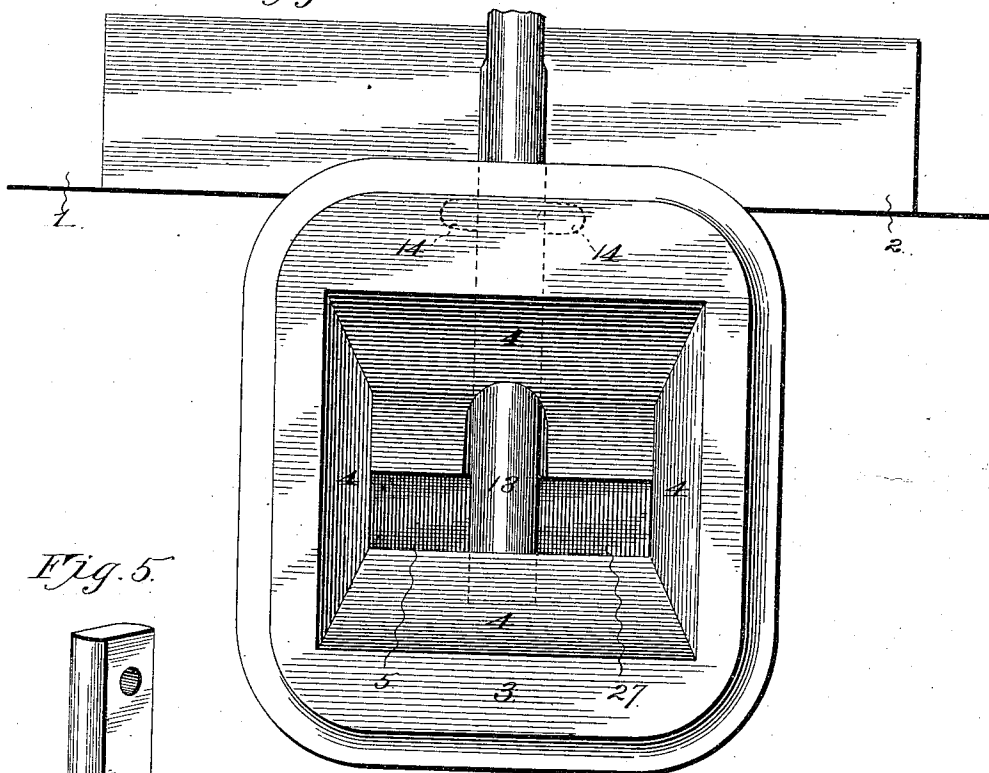


Fig. 5.

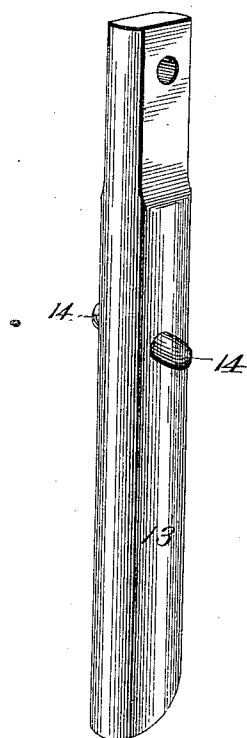


Fig. 6.

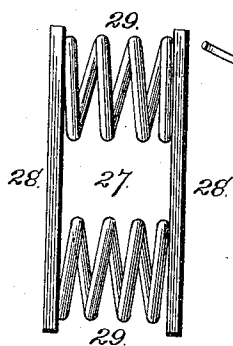
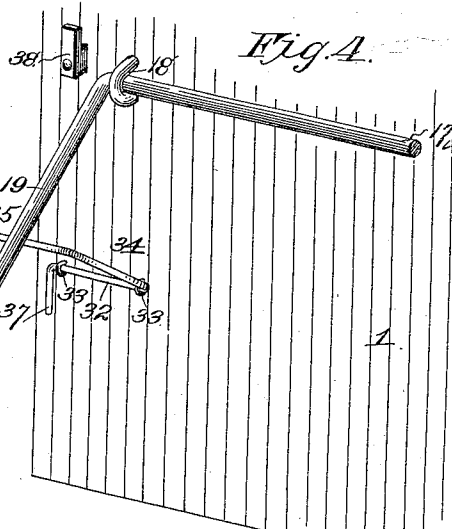


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROBERT W. POTEET AND EDWARD FITZGERALD, OF KANSAS CITY,
MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 562,024, dated June 16, 1896.

Application filed January 24, 1895. Renewed October 26, 1895. Serial No. 567,036. (No model.)

To all whom it may concern:

Be it known that we, ROBERT W. POTEET and EDWARD FITZGERALD, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Car-Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to car-couplings which automatically couple when brought together, and may be uncoupled without necessitating the entrance of the operator between the cars and thereby endangering his life.

The object of the invention is to produce a car-coupling which is positive and reliable in operation and comparatively simple, strong, durable, and inexpensive of construction.

With this object in view our invention consists in certain novel and peculiar features of construction and combination of parts, as will be hereinafter described and claimed.

In order that the invention may be fully understood, we will proceed to describe it with reference to the accompanying drawings, in which--

Figure 1 represents a perspective view of a portion of a car provided with a coupler embodying our invention, the link of the same being in its coupled or operative position. Fig. 2 represents a vertical longitudinal section of the coupler, and shows the position of the operative mechanism when in its uncoupled or inoperative position. Fig. 3 represents, on an enlarged scale, a front view of the coupler, the link being removed. Fig. 4 represents a perspective view of a portion of the rock-shaft, which is operated to disengage the pin from the link, and also shows the device for supporting said rock-shaft from accidental rotation or operation, so that if two cars are brought together without intending to couple the same the shock will not cause the pin to assume its operative or coupled position. Fig. 5 is a detail perspective view, on an enlarged scale, of the coupling-pin; and Fig. 6 is a view, on an enlarged scale, of a cushion to receive the impact from and protect the link, as will be hereinafter more particularly referred to.

In the said drawings, where similar numerals designate corresponding parts, 1 1 designate the end of a box or freight car, and 2 the transverse bumper carried thereby.

3 designates the draw-head of the coupler, which is provided with the flaring mouth 4, communicating at its rear end with a narrow rectangular chamber 5, extending longitudinally of the draw-head. The top wall of the draw-head, or that which lies above the said chamber 5, is provided with an aperture 6 of configuration to form a vertical wall 7 at its front end. A similar wall 8 is provided at the front end of a cavity 9, formed in the upper side of the bottom wall of the draw-head. This aperture 6 and cavity 9 correspond in width and are much narrower than the said chamber 5, in fact being sufficiently wide only for the free operation of the coupling pin or dog, to be presently described. Communicating with the opening 6 at opposite sides thereof, and formed in the upper side of the draw-head, are the cavities 10, and communicating also with the upper end of said opening is a cavity 11, the base or bottom of which extends downward and inward in a plane parallel to the top wall 12 of the said opening 6.

The distance between the inclined parallel planes represented by the base of the recess 11 and the top wall 12 of the opening 6 equals in thickness the coupling pin or dog 13, which is provided about midway its length with the outwardly-extending trunnions 14, which fit rotatably in the cavities 10. The said coupling pin or dog in operative position rests against the shoulders 7 and 8, as shown by dotted lines, Fig. 2, and when operated in one direction or the other swings with its lower end contiguous to the base or bottom of the cavity 9, which extends concentrically to the axis of the trunnions 14. When said coupling pin or dog occupies its inoperative position, its lower end lies in the plane of the upper surface of the chamber 5, as shown clearly in full lines, Fig. 2. The upper end of said coupling pin or dog is pivotally connected at 15 in the bifurcated front end of a link 16. At a suitable distance above the draw-head a rock-shaft 17, extending transversely of the end of the car, is rotatably

mounted in bearings 18 of the construction shown or of any other suitable or preferred construction. Said shaft at its opposite ends is provided with crank-arms 19 and in the plane of the said arms near its middle with the arm 20, which is provided with a lateral extension 21, which pivotally engages the rear end of the link-bar 16, hereinbefore referred to. A lever 22 is pivotally mounted at its upper end at 23 upon a bracket or casting 24, secured to the end of the car, and has its lower bifurcated end embracing the rear end of the link-bar 16 and pivotally mounted upon the extension 21 of the arm 20 of the rock-shaft. Owing to the fact that said lever 22 swings from a different center from the arm 20, it is provided at its point of connection therewith with the elongated aperture or slot 25, in which the portion 21 may reciprocate when in operation—that is, when it swings to the position shown in full lines, Fig. 2, it occupies the lower portion of the said slot, and when it re-assumes its normal position it occupies the upper end of the said slot, as shown clearly in Fig. 1. The lever 22, the link 16, and the pin or dog 13 bear such relation to each other that when the lower end of the said dog occupies the plane of the upper side of the chamber 5 the pivots 15, 21, and 23 occupy the same inclined plane. To prevent the pivot 21 by any possibility swinging out beyond said inclined plane, and thereby causing the pin or dog to swing again to its operative position, the cross-bar 26 is provided, which extends across the bifurcated lower end of the lever 22, and is contacted by the upper and rear end of the link 16 after it has reached the position shown in Fig. 2. At the inner end of the chamber 5 is arranged a cushion 27, which comprises a pair of parallel plates 28, held yieldingly apart by the interposed springs 29.

When two cars are coupled, the link 30, of ordinary size and construction, carried by one of them, enters the other, and striking against the lower portion of the coupling pin or dog swings it to the position shown in Fig. 2. At the instant the coupling-link becomes disengaged from said pin or dog it swings by gravity back to its original position against the shoulders 7 and 8, and therefore projects through the link, which cannot be disengaged until said pin or dog is again forced to the position shown in full lines, Fig. 2. The pin or dog is caused to swing very quickly to its vertical position by reason of the rock-shaft arm 20 and the auxiliary lever 22 gravitating in the direction indicated by the arrow *a*. At the instant the pin or dog swings to its vertical or operative position the opposing draw-heads come together and the cars are relieved of the accompanying shock or jar by means of the spring-buffers 31 of the usual construction and arrangement. When links of the ordinary size are employed, they never come in contact with the cushion 27 in the rear ends of the chambers 5, because said draw-heads engage; but when links of greater

length are employed—that is, of length exceeding twice the distance between the front plate 28 of the cushion and the front end of the draw-head—it will be apparent that said link engages said cushions before the draw-heads come together, and yielding under the pressure applied said cushions prevent the links being twisted or broken, as will be understood.

To uncouple a car from another, one or the other of the handles 19 of the rock-shaft 17 may be operated, without going between the cars, to the position shown in full lines, Fig. 2, which throws the coupling pin or dog into the recess 11 and against the upper wall of the opening 6. The cars may now be moved apart. If it is required to hold said coupling pin or dog in its uncoupled position, and thereby prevent the car being accidentally coupled to another, we provide the following construction: A short rock-shaft 32, extending parallel with and a suitable distance below the rock-shaft 17, is journaled in the bearings 33, and is interposed between the end of the car and one of the crank-arms 19 of the said rock-shaft 17. At one end said rock-shaft 32 is provided with an approximately Z-shaped continuation, which comprises the arm 34, the arm 35, and the arm 36, all in the same plane as the shaft 32. The arm 35 is parallel with the said shaft 32, while the arms 34 and 36 are parallel with each other and extend at right angles to said shaft. At its opposite end the rock-shaft 32 is formed with a short extension 37, which projects outwardly at right angles to the shaft and to the arms 34 and 36. When the device occupies its inoperative position, the arm 36 lies vertically against the end of the car, and is engaged and held in such position by the turn-button 38, secured upon the car.

To support the coupling pin or dog in its inoperative or uncoupled position, the turn-button 38 is disengaged from the arm 36, and the device is pivotally operated until the arm 37 bears squarely against the end of the car and the arms 34 and 36 project outwardly, as shown in Fig. 2. When occupying this position, the arm 35 of the device bears against the under side of the contiguous arm 19 of the rock-shaft 17 and supports it reliably in the position shown in Figs. 2 and 4. To move the device back to its original position, it is pivotally operated in the direction indicated by the arrow *b*, Fig. 2.

By providing the draw-head with the wide flaring mouth it is obvious that a few inches difference in the height of opposing draw-heads will not prevent or interrupt the free and expeditious coupling of a pair of cars, because the end of the link, by engaging one wall or the other of the wide flaring mouth, will be directed positively and reliably into the chamber 5.

It will be noticed that the entire strain from the coupling-link will be borne by the extended shoulders 7 and 8, engaged by the

lower end of the coupling pin or dog, so that the coupler combines the greatest strength with simplicity of construction. It will be also noticed, owing to the fact that the chamber 5 exceeds the thickness of the link only slightly, that it will be impossible for the front end of the link to be depressed sufficiently to prevent it entering an opposing draw-head, therefore obviating the necessity of an extra device or the attention of an attendant to raise the projecting end of the link each time the coupling operation takes place.

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

1. A car-coupler, comprising a draw-head provided with a flaring mouth and with a longitudinally-extending chamber communicating therewith, and recessed to form vertical shoulders above and below said chamber, and to form also bearing cavities or recesses, and a cavity having an inclined bottom above the uppermost shoulder, a coupling pin or dog provided with laterally-projecting trunnions engaging said bearing-cavities, a link pivoted to the upper end of said coupling pin or dog, a lever pivotally connected to the opposite end of said link, and provided with a bridge-bar, which is adapted to limit the movement of the said link and said lever in one direction, and means to operate said lever, substantially as set forth.

2. A car-coupler, comprising a draw-head provided with a flaring mouth and with a longitudinally-extending chamber communicating therewith, and recessed to form vertical shoulders above and below said chamber, and to form also bearing cavities or recesses, and a cavity having an inclined bottom above the uppermost shoulder, a coupling pin or dog provided with laterally-projecting trunnions engaging said bearing-cavities, a link pivoted to the upper end of the said coupling pin or dog, a rock-shaft journaled transversely upon the end of the car and provided with a crank-arm at each end, and with an additional arm pivotally connected to the opposite end of the said link, a device for supporting the coupling pin or dog in its inoperative position by engagement with one of the crank-arms of the said shaft, consisting of a rock-shaft journaled upon the end of the car, and a parallel arm connected thereto which engages the said arm of the first-mentioned shaft, substantially as set forth.

3. A car-coupler, comprising a draw-head provided with a flaring mouth and with a

longitudinally-extending chamber communicating therewith, and recessed to form vertical shoulders above and below said chamber, and to form also bearing cavities or recesses, and a cavity having an inclined bottom above the uppermost shoulder, a coupling pin or dog provided with laterally-projecting trunnions engaging said bearing-cavities, a link pivoted to the upper end of the said coupling pin or dog, a rock-shaft journaled transversely upon the end of the car and provided with a crank-arm at each end, and with an additional arm pivotally connected to the opposite end of the said link, and a device for supporting the coupling pin or dog in its inoperative position, consisting of a rock-shaft upon the end of the car, an approximately Z-shaped continuation of said shaft, an extension at the opposite end of said shaft and projecting at right angles to the plane of the Z-shaped continuation, and a turn-button carried by the car and engaging the free end of the said Z-shaped continuation, substantially as and for the purpose set forth.

4. A car-coupler, comprising a draw-head provided with a flaring mouth and with a longitudinally-extending chamber communicating therewith, and recessed to form vertical shoulders above and below said chamber, and to form also bearing cavities or recesses, and a cavity having an inclined bottom above the uppermost shoulder, a coupling pin or dog provided with laterally-projecting trunnions engaging said bearing-cavities, a link pivoted to the upper end of the said coupling pin or dog, a rock-shaft journaled transversely upon the end of the car and provided with a crank-arm at each end, and with an additional arm pivotally connected to the opposite end of the said link, an auxiliary lever carried by the car, and provided with a bifurcated end which is pivotally connected to the said additional arm of the rock-shaft and embraces the opposite sides of the said link, and is provided with a bridge-bar for engagement with the contiguous end of the said link at times, and means carried by the car to engage one of the arms of the rock-shaft and thereby support the coupling pin or dog, substantially as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

ROBERT W. POTEET.

EDWARD FITZGERALD.

Witnesses:

M. R. REMLEY,

G. Y. THORPE.