L. RIEGLER

CAR COUPLING.

APPLICATION FILED FEB. 4, 1911.

1,013,220.

Patented Jan. 2, 1912.

2 SHEETS—SHEET 1.

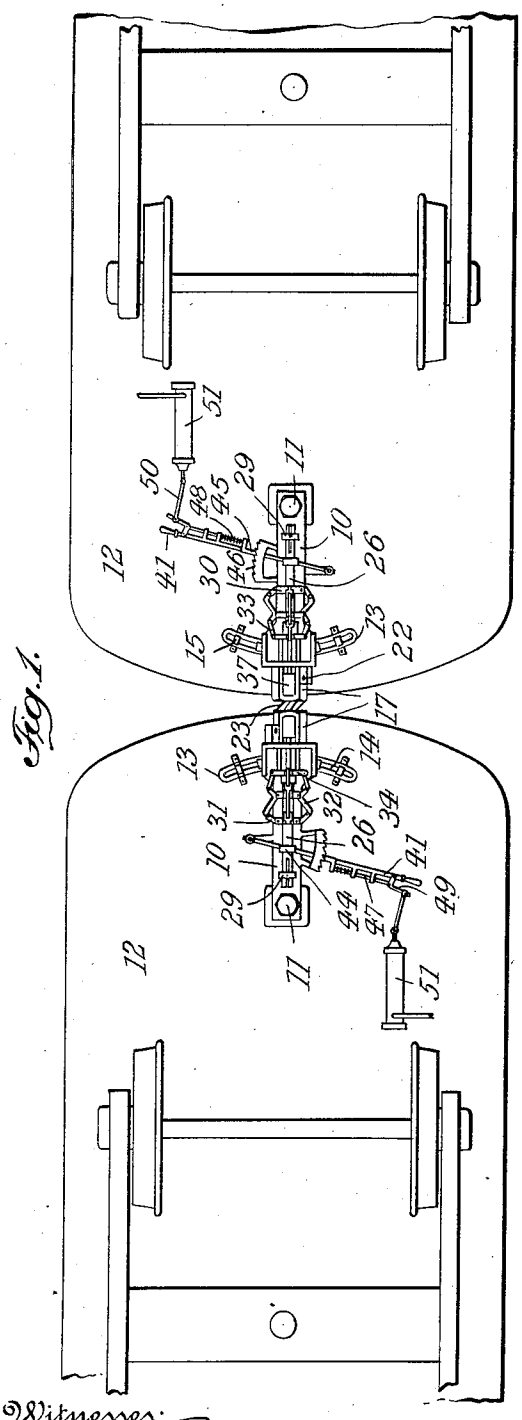

Fig. 1.

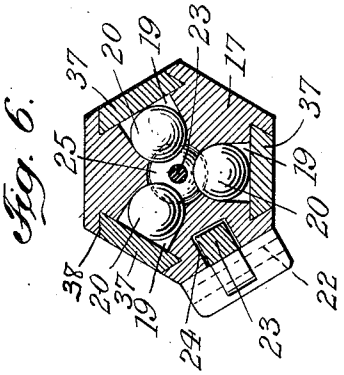

Fig. 6.

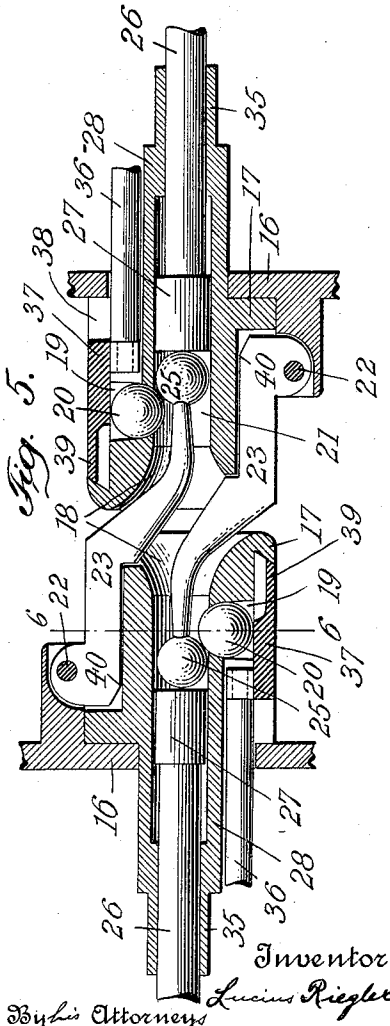

Fig. 5.

Witnesses:

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Inventor

Lucius Riegler

By his Attorneys

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2 SHEETS—SHEET 2.

Fig. 2.

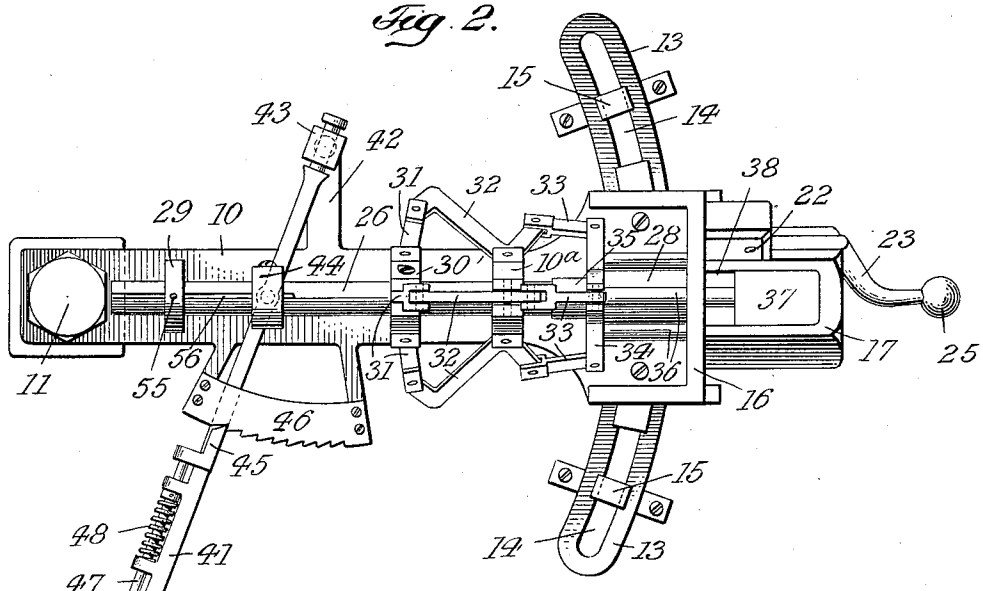

Fig. 3.

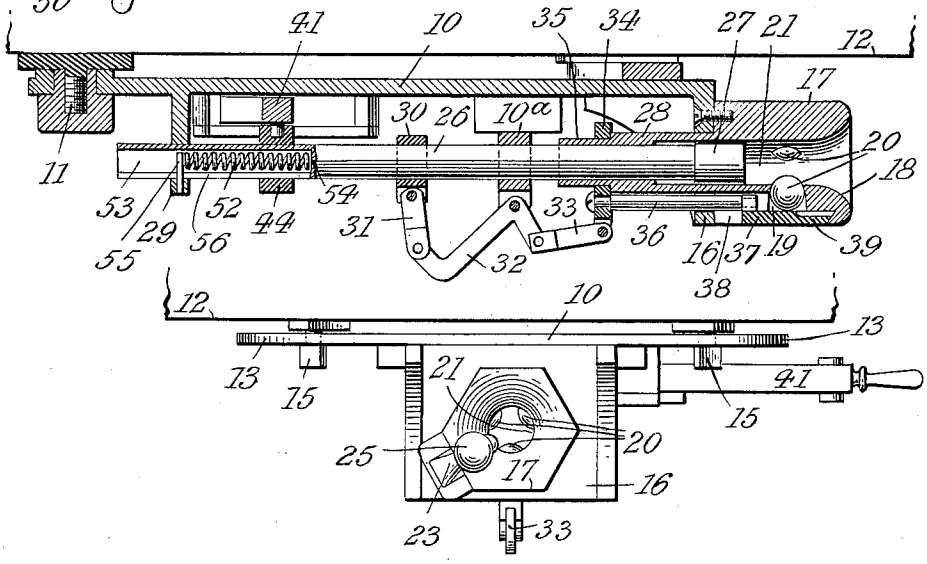

Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

LUCIUS RIEGLER, OF WEST HOBOKEN, NEW JERSEY.

CAR-COUPLING.

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1,013,220.

Application filed February 4, 1911. Serial No. 606,496.

To all whom it may concern:

Be it known that I, LUCIUS RIEGLER, a subject of the Emperor of Germany, residing at West Hoboken, county of Hudson, and State of New Jersey, have invented a new and Improved Car-Coupler, of which the following is a specification.

This invention relates to a car coupler of novel construction which permits the cars to be automatically coupled in a reliable manner, while the uncoupling is placed under the full control of the engineer, so that delays and accidents in making up trains are avoided.

In the accompanying drawing: Figure 1 is a bottom view partly broken away, of a pair of adjoining cars provided with my improved coupler; Fig. 2 a bottom view of the coupler; Fig. 3 a longitudinal section thereof; Fig. 4 an end view; Fig. 5 a longitudinal section through a pair of coupled draw heads, and Fig. 6 a cross section on line 6—6, Fig. 5.

The draw bar 10 adapted to turn on a bolt 11 of the car bottom 12 is guided during oscillation by laterally extending curved wings 13 arranged concentrically to the bolt 11 and having curved slots 14 which are engaged by headed guide pins 15 depending from the bottom 12. The outer end of the draw bar 10 is provided with a depending flange or transverse plate 16 carrying the draw head 17. This draw head has a bell-shaped mouth 18 and is provided at a suitable distance back of said mouth with a plurality of outwardly flaring sockets 19 that accommodate radially displaceable balls, rollers or other grasping members 20, said balls being of such diameter that they may be partly projected into the axial bore 21 of the draw head but cannot fall out of the sockets 19. Draw head 17 is preferably made of hexagonal form, while a bolt 23 fulcrumed to plate 16 at 22 is adapted to be accommodated at its rear end within a longitudinal surface groove 24 of said head. The forward end of the bolt is headed as at 25, and is so deflected inward, that it extends in axial alinement with the bore 21, when the bolt is seated within the groove 24. It should here be stated that the two cooperating couplings of a pair of adjoining cars, are of twin construction, the headed bolt 23 of one coupling being adapted to enter the bell-shaped mouth of the other coupling, to which it is locked by the action of the balls 20. These balls are automatically advanced inward and converged as soon as they have been cleared by the head 25 of the entering bolt 23 and are then locked so that in this way the withdrawal of the bolt is prevented. When it is desired to uncouple the cars, the balls are unlocked, so that they may be readily crowded aside or diverged by the receding bolt head, such unlocking being preferably under the control of the engineer. The means for actuating the balls in the manner described are as follows:

Within the draw head 17 plays a plunger 26 having a head 27 that enters the axial bore 21 of the drawhead and is thus accessible to the head 25 of the opposed bolt 23. Plunger 26 is guided within a rear tubular extension 28 of the head 17 and also in a bearing 29 depending from the draw bar 10. Upon the plunger 26 is fastened a collar 30, to which are pivoted links 31 that are in turn pivoted at their outer ends to the comparatively long rear arms of elbow levers 32. These levers are fulcrumed at their elbows upon a fixed annulus 10^a encompassing the plunger 26 and secured to the draw bar 10. The shorter front arms of levers 32 are pivoted to links 33 which are in turn pivoted to a sliding collar 34, encompassing the plunger 26 and riding upon a reduced section 35 of the tubular extension 28. To the collar 34 are secured the rear ends of a number of rods 36 arranged concentrically around the plunger 26, and corresponding in number to the number of balls 20. At its forward end, each rod is operatively connected to a recessed slide 37 guided in the head 17. Slides 37 have beveled edges and are accommodated within undercut surface recesses 38 of the head, so that they may be freely reciprocated along the head. Slides 37 are reduced in thickness at their forward ends as at 39 to permit an outward play of the balls when said reduced portions are brought opposite the balls.

As thus far described, the operation is as follows: When two cars are to be coupled, each bolt 23 (the outward play of which is limited by a stop 40) will enter the bell-shaped mouth 18 of the opposed draw head and will by the flare of said mouth be swung with its outer end into axial alinement with the draw head. As the cars come together, the bolt heads 25 will engage the plunger heads 27 and thus slide said plungers inward.

This inward movement will by the collar 30, links 31, levers 32, links 33, sliding collar 34 and rods 36 cause the slides 37 to move outward along the head 17. Thus after the head has passed the balls 20, the thickened portions of the slides will come into engagement with the balls to converge them toward the axis of the draw head and lock the same in a cluster back of the head 25. In this way each bolt 23 is coupled and is automatically locked against withdrawal. The means for retracting the slides are preferably controllable by the engineer and are shown to consist of a lever 41 pivotally connected to an arm 42 of the bar 10 by a swivel block 43 in which said lever is free to slide. Lever 41 is connected to the plunger 26 by a collar 44 and is provided with a latch 45 adapted to engage a toothed segment 46 fastened to the bar 10. The stem 47 of the latch is influenced by a spring 48 and is by an angle lever 49 and a rod 50 connected to the piston of a compressed air or steam cylinder 51. It will be seen that by admitting the pressure medium to said piston, the latch is retracted and the lever 41 swung outward to advance the plunger 26 and simultaneously retract the slides 37. In this way the reduced sections of the slides are brought opposite the balls 20, so that when the cars are separated, said balls may be pushed outward by the heads 25 and permit the bolts 23 to be withdrawn. In order to facilitate the advance movement of the plunger 26 when opening the coupler, a spring 52 may be mounted in a corresponding rear socket 53 of the plunger 26 which with its forward end engages an inner abutment 54 of the plunger while its rear end engages a pin 55 extending from the bearing 29 into the socket 53 through a longitudinal slot 56 of the plunger 26. This spring will be compressed during coupling and its stored up energy will during uncoupling coöperate with the cylinder 51 for advancing the plunger 26 upon the retraction of the latch 45. It is of course obvious that the coupling may also be applied for mooring vessels and for similar purposes.

I claim:

1. In a car coupler, a tubular draw head; a plurality of radially movable grasping members carried thereby, recessed slides operatively engaging said members and movable out of operative position, a plunger slidable within the head and operatively connected to the recessed slides, and a bolt with enlarged head pivoted to the draw head and having an inwardly deflected forward section adapted to be brought into axial alinement with the draw head.

2. In a car coupler, a tubular draw head, a plurality of radially movable grasping members carried thereby, recessed slides operatively engaging said members and movable out of operative position, a plunger movable within the head, a collar mounted upon the plunger, elbow levers connected to said collar, a sliding collar connected to the elbow levers, and means for connecting said sliding collar with the recessed slides.

3. In a car coupler, a tubular draw head, a plurality of radially movable grasping members carried thereby, recessed slides operatively engaging said members and movable out of operative position, a plunger movable within the head, a collar mounted upon the plunger, a first set of links pivoted to the collar, elbow levers fulcrumed on a stationary part of the draw bar and having arms of different lengths, said elbow levers being pivoted with their longer arms to said links, a second set of links pivoted to the shorter lever arms, a sliding collar connected to the second set of links, and means for connecting said sliding collar with the recessed slides.

4. In a car coupler, a tubular draw head having a plurality of flaring sockets, radially displaceable balls within the sockets, a headed plunger movable within the draw head, a sliding collar operatively connected to the plunger, a plurality of recessed slides connected to the sliding collar and adapted to engage the balls, and a coöperating headed coupling bolt adapted to engage the plunger-head and to become interlocked with the balls.

LUCIUS RIEGLER.

Witnesses:

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