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RAILWAY CAR COUPLING.

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1,025,521. **Patented May 7, 1912.**

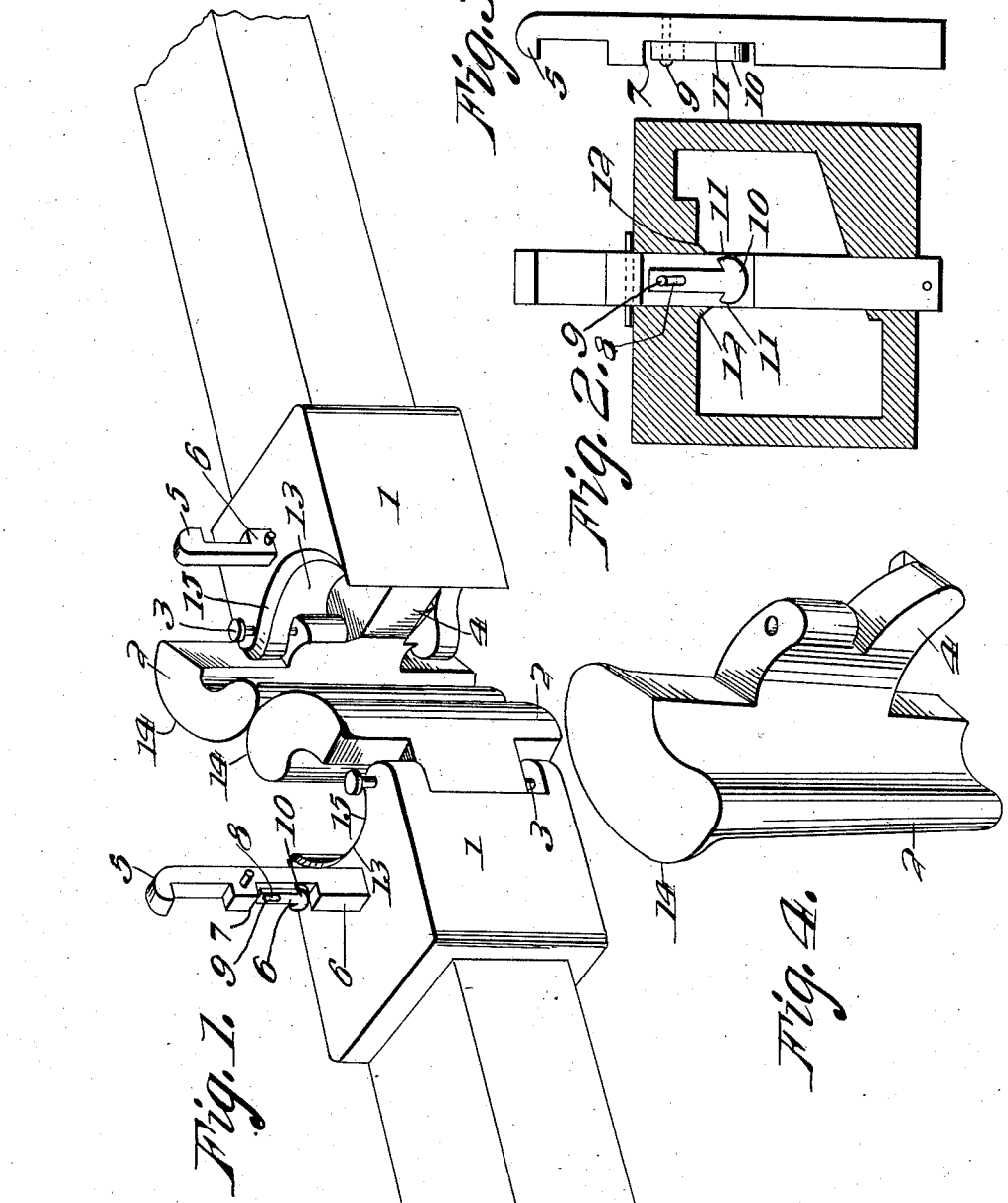

Fig. 1.

Fig. 3.

Fig. 2.

Fig. 4.

WITNESSES

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RAILWAY-CAR COUPLING.

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Application filed October 27, 1909. Serial No. 524,805.

To all whom it may concern:

Be it known that we, JAMES F. DURBIN and VOTAW S. DURBIN, citizens of the United States, residing at Fort Scott, in the county of Bourbon and State of Kansas, have invented certain new and useful Improvements in Railway-Car Couplings, of which the following is a specification.

This invention relates to railway car couplings, and pertains more particularly to the type of coupling characterized by opposing heads provided with eccentrically pivoted knuckles, having offset projections which are adapted to be engaged and latched behind latch pins which are vertically slidable through the center of said heads.

The object of the invention is to provide a coupling, in which, when the coupling members are secured in coupled relation, it will be impossible for said members to become uncoupled by reason of the swaying, sidewise tilting or even the complete overturning of the cars or train in which our improved coupling is used.

A further object is to provide a coupling of the above described nature which will be automatic in its action. That is, it is our intent to provide an automatic lock or latch by means of which the coupling will be automatically locked against uncoupling only in event of a wreck or similar occurrence in which the cars are overturned or canted to an unusual degree. At all other times, when the train or coupled cars are in their normal positions on the track the locking feature is idle, though always in position to become operative to lock the coupling against separation, when the cars are unduly canted, as described. Furthermore, as the locking element is mounted to swing free in either direction any excessive swaying or jolting of the cars, especially in a lateral direction, such as might tend to throw the latch-pin out, will also tend to swing the locking element into position to temporarily prevent such movement of the latch-pin, the locking member resuming its normal position when the movement or position of the cars becomes normal. In practice, except when the locking member is thrown to one side or the other by a sudden movement of the cars, said locking member will only become operative when the cars are tilted to an angle of approximately forty-five degrees.

With the above objects in view, our invention will now be fully described with regard to the accompanying drawings which form a part of this specification, and in which:—

Figure 1 is a perspective view of a coupling embodying our improvement, and showing the coupling heads in position to be engaged and locked, Fig. 2 is a sectional elevation taken on the line 2—2 of Fig. 1, Fig. 3 is a side elevation of one of the latch pins, and Fig. 4 is a perspective view of one of the knuckles employed in the coupling.

Referring more particularly to said drawings, 1 indicates the hollow coupling heads, each of which is provided with a knuckle 2, pivoted at one side of the head as by the pivot pins 3 and having a latch member 4 which projects and operates within the cavity formed in each head.

Latch pins 5 operate through vertically registering apertures formed in the top and bottom walls of the heads 1 as best shown in Fig. 2 and are adapted to engage and latch the latch members 4 of the knuckles 2. Each latch pin 5 is provided on one face, preferably the rear face 6, with a comparatively long recess 7, which extends vertically of said latch pin, and entirely across its width. Pivotally mounted within said recess 7 is a headed locking member 8. Said locking member 8 comprises a shank member having at its upper end a vertically disposed slot by means of which said shank is suspended within the recess 7 from a pin 9. Said shank is formed of considerable less width than the width of the latch pin 5, and is provided at its lower end with the head 10. Said head 10 consists of a substantially semi-circular enlargement preferably integral with the shank, and terminates at each side in pointed hook like extensions 11. Said extensions 11 are formed by undercutting the head 10 so that the portions of said head at each side thereof project outwardly and form hooks or lock members. The length of the locking member 8 and the width of the head 10 are such that said head will not project beyond the side of the latch-pin until the latter is tilted to an angle of substantially forty-five de-

grees. Said hook like extensions 11 are adapted to engage under and interlock with downwardly projecting ridges or lips 12 which are formed on the upper inner portion of the heads 1 and occur on each side of the upper one of the apertures through which the latch pins 5 operate.

It is evident that the locking members 8 are mounted to have their centers of gravity at the lowest point possible, and at the farthest point from their pivotal points, thereby rendering said members 8 capable of being easily rocked or swung to and fro from their pivotal points, on the latch pins 5. Now, as the cars proceed in their normal upright positions, said locking members 8 will remain suspended in their vertical positions, and will not project from either side of their respective latch pins. However, as soon as the cars are unduly tilted in a lateral direction, as by overturning in a wreck, or by being rocked considerably on bad road beds, the locking members 8 will be swung laterally across the vertical line of the latch pins 5, into a position to engage with the ridges 12, formed on the inside of the heads 1, and such engagement will follow so quickly upon the lateral reciprocation of the locking-members 8 that it will be impossible for the latch pins 5 to be raised by jarring or through the overturning of the cars, with the consequent unlocking of the coupling members.

The knuckles 2, which as above set forth, are pivoted eccentrically, or at one side of the coupling heads 1, consist generally of a locking head portion having a rearwardly projecting shank, which in cross section is substantially a continuation of the head portion projected through one side therein. Said head portions of the knuckles are substantially the same height or slightly longer than the height of the heads 1 and taper from top to bottom. Said head portions are also formed with curved outer faces, so that, when said knuckles are set in locked position, the head portions thereof substantially seat in recesses 13 of the opposite coupling heads, and oppose the corresponding recesses of the adjacent head. The rear faces of said head portions of the knuckles are curved correspondingly to said outer faces, thus providing faces with concavo convex formations in cross section, and the free edges of said heads are rounded whereby to join the inner and outer curved faces and said free edge in a continuous surface. Thus, said head portions of the knuckle are formed as interlocking members, and are adapted to automatically slide around one another into engagement, and this will occur, whether both or only one of said knuckles is in unlocked or open position. As above stated, the head portions of said knuckles taper from top to bottom, and their upper ends are provided with the enlargements or lips 14. Said lips 14 comprise overhanging projections which substantially enlarge the upper ends of the tapered head portions, and are beveled to gradually merge into the upper part of the head portions. As heretofore mentioned, the convex sides of the head portions of the knuckles interfit with the recesses 13 formed in the ends of the heads 1 of the coupling members, and the upper forward edge of said heads of the coupling members are rearwardly slanted or beveled to correspond with the enlargements 14, as shown at 15, formed on the head portions of the knuckles 2, so that as the knuckles are vertically reciprocated or play with the movement of the train as the car proceeds over a track, the upward movement of the head 1 or the downward movement of the opposite knuckle 2 will be limited by the interlocking of the slants or bevels 15 with the enlargements 14 formed on the knuckles.

From the above, it will be evident that the independent play of the interlocked coupling members, while being considerable, is nevertheless limited by the above mentioned interlocking of the enlargement 14 with the slants or bevels 15, and it further follows that in the event of a wreck, or in the event of the train going over a piece of rough or softened road-bed, where the couples are subjected to a great deal of vertical movement it will be impossible for the coupling members to become separated, due to the above mentioned interlocking feature. In fact, in the event of a complete overturning of the coupling members it would be still impossible for the members to become detached through the separation vertically of the knuckles 2 and consequently of the heads 1.

From the above description it will be evident that the various improvements described and embodied in the type of railway coupling set forth, provide a reliable, and efficient apparatus. The latch pins provided with the automatically operative locking member tends to insure the maintenance of the latch pins in their proper position at all times during the interlocked relation of the coupling members while the cars are in motion, and the peculiar formation of the knuckle heads further aids in completely and thoroughly placing the coupling members in such relation that it is practically impossible for the coupling members to become accidentally separated under any ordinary, and in fact extraordinary conditions.

Having thus fully described our invention, what we claim and desire to secure by Letters Patent of the United States is:—

A car coupling comprising, in combination, a head, a knuckle mounted on said

head, a latch-pin for locking said knuckle in a closed position, and a locking member pivotally mounted on said latch-pin and being free to swing into engagement with the head to prevent the withdrawal of the latch-pin when the car coupling is unduly canted or subjected to excessive jarring or swaying, said locking member being normally inoperative.

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

JAMES F. DURBIN.
VOTAW S. DURBIN.

Witneesses:
JON G. WAYLAND,
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