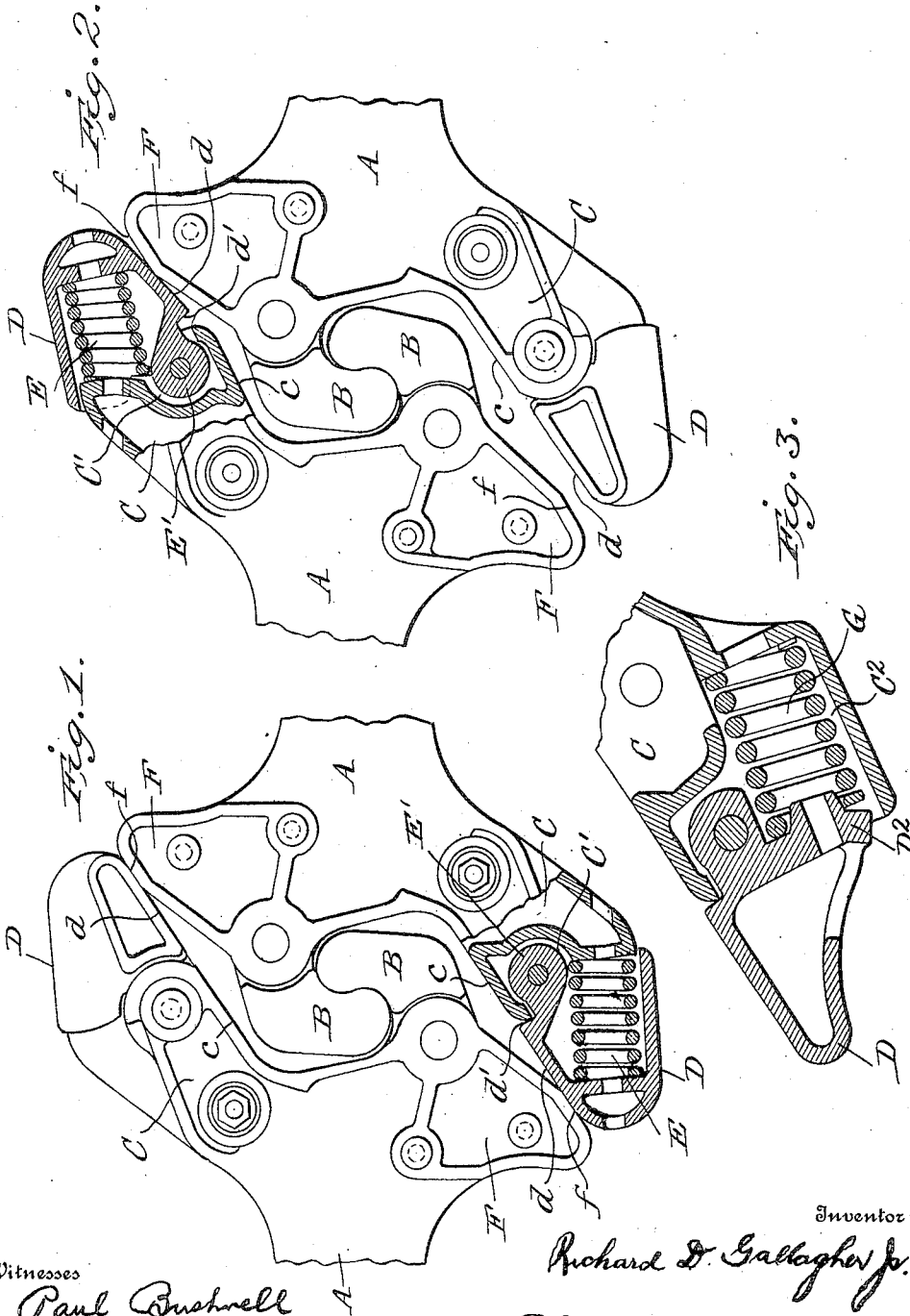


971,882.

Patented Oct. 4, 1910.



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UNITED STATES PATENT OFFICE.

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RAILWAY-CAR COUPLING.

971,882.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RICHARD D. GALLAGHER, JR., a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Railway-Car Couplers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to car couplings, and is particularly designed to provide a coupling wherein the coupler heads will be maintained in alinement with each other, the transverse movement necessary on curves, cross-overs and the like taking place from centers well back from the end of the car and more or less coincident with the axis upon which the trucks turn. Couplers of this type are known in the art as radial couplers, inasmuch as they have a swinging or radial movement with respect to the car body, and the invention of the present application is designed for use with any construction of draw-bar having a radial movement.

In the accompanying drawings, the coupler heads alone are illustrated, except in Fig. 3, where a conventional form of radial connection is illustrated in order that the invention may be more clearly understood.

In said drawings: Figure 1 is a top plan view of a pair of coupler heads in their coupled position, one of the guard arms and its nose piece being shown in section. Fig. 2 is a similar view with the coupler heads at the limit of their relative pivotal movement. Fig. 3 is a detail sectional plan of a modified form of nose piece or yielding guard arm extension.

Like letters of reference indicate the same parts in all the views.

Each of the coupler heads A is provided with a horizontally swinging knuckle or hook B, pivotally mounted in the head, and suitable mechanism not illustrated, but which may be of any known or preferred character, is provided for holding the knuckles in their closed position and for automatically locking them closed when the couplings are brought together. The contour lines of the knuckles and of those portions of the heads A which directly cooperate therewith,

when in coupled position, correspond in all essential particulars to the contour lines of the M. C. B. couplers in common use, although the invention of the present application is not necessarily limited to any particular contour lines of these parts.

Each head is provided with a rigid guard arm C, the inner face *c* of which is adapted to cooperate with the knuckle of the cooperating coupler to close the same and to prevent disengagement after the knuckles have been properly engaged by being forced together. The rigid guard arm C extends forwardly and outwardly, preferably, somewhat further than the ordinary guard arm, and in carrying out the present invention there is interposed between the end of the guard arm and the cooperating or opposed coupler head, a yielding member having a limited movement and a considerable resistance. The yielding members and coupling heads preferably engage simultaneously at both sides of the knuckle so as to resist any pivotal movement of the coupler heads upon or with relation to each other, and at the same time, due to the yielding of the interposed members, the effective engagement of the knuckles is not prevented, but, on the contrary, the close engagement of the knuckles is insured.

In the preferred construction, illustrated in Figs. 1 and 2, the guard arm C is provided with a pivoted nose piece D, the inner face *d* of which constitutes a continuation of the inner face *c* of the guard arm, and preferably extends forwardly and outwardly in alinement therewith. Cooperating shoulders *d'* limit the pivotal movement of the nose piece in one direction, and while suitable shoulders may be provided for limiting the pivotal movement in the opposite direction the spring E, usually housed within the nose piece, will ordinarily constitute a sufficient stop for limiting the outward pivotal movement of the nose piece, said spring being adapted to close down solid, as indicated in Fig. 2, when subjected to severe strains.

For cooperation with the pivoted or yielding nose pieces of the guard arms, the coupler heads are preferably provided with rigid transverse projections F, located in rear of the knuckles and having inclined faces *f* with which the nose pieces are adapted to contact when the couplers are

locked together, thus the points of contact between the guard arms and coupler heads are located transversely a considerable distance from the axial line of the couplings, and will, therefore, operate effectively in preventing or resisting pivotal movement of the heads with relation to each other. This action of the nose pieces and projections does not cause destructive leverage to be exerted between the knuckles and heads such as would result if the knuckles themselves fit tight and contact directly with the heads in resisting relative pivotal movement. In this connection it will be noted that in the preferred construction the contour lines of the proximate faces of the coupler heads and outer portions of the knuckles are such that the relative pivotal movement is arrested by the guard arm and projections before the outer faces of the knuckles and coupler heads contact with each other, the resultant strain on the knuckles being, in their effect, similar to a draft strain and hence in lines least likely to break the coupler or to derail the car.

Obviously, the construction of the yielding nose piece and end of the rigid guard arm are capable of considerable variation, and while that illustrated in Figs. 1 and 2 is preferred, *i. e.*, with a socket C' in the end of the guard arm for the reception of the pivot boss E' , of the nose piece, and with the spring housed within the nose piece itself, the construction illustrated in Fig. 4 may for some purposes be found equally effective. In the latter construction while the nose piece D^9 is pivotally mounted in a socket in the end of the guard arm C^9 , the spring G is housed within a spring barrel C^2 in the end of the guard arm and the nose piece D^9 is provided with an extension D^2 for coöperating with the spring. In other respects the two structures are practically the same and further detailed description or illustration is thought to be unnecessary.

With coupler heads constructed as described, it will be noted that the coupler heads are maintained in alinement with each other, even under the extreme conditions illustrated, and hence not only will draft and buffing strains be effectually resisted, but the tendency to derail the cars by transversely acting pressure is greatly reduced.

With the coupler heads maintained in alinement by widely separated bearings and the pivotal movement confined to the inner ends of the radially movable draw-bars, there is little tendency to buckle at the knuckles or meeting faces of the couplings, but any such tendency is resisted and overcome by the coöperating ends of the guard arms and projections without appreciably increasing the strain on the knuckles and pins through which the draft and buffing strain are transmitted.

The contour lines of the head and knuckles are such that they are adapted to receive ordinary M. C. B. knuckles, and hence the present invention does not require the complete equipment of all cars, but permits of the use of the coupling in connection with the ordinary equipment now in use.

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

1. In a railway car coupler, a head, a knuckle pivoted in the head and having an end forming a hook for engagement with a similar hook in a coöperating head, said head having a forwardly and outwardly projecting guard arm rigid and integral therewith forming a seat for the coöperating knuckle to prevent bodily relative transverse movement of coöperating knuckles and consequent disengagement of the couplers, and a yielding nose piece pivotally mounted on and having an operative face forming a continuation of the operative face of the guard arm for guiding the coöperating coupler into coupling position and coöperating with the body of the coupler for yieldingly resisting pivotal movement of the couplers with relation to each other.

2. In a railway car coupler, the combination of a head having a rigid forwardly and outwardly projecting guard arm on one side for holding the knuckles in engagement and a rearwardly and outwardly inclined rigid projection on the opposite side, a yielding nose piece pivotally mounted on and having an operative face forming a continuation of the operative face of the guard arm, and a knuckle pivotally mounted in the head intermediate the guard arm and projection.

3. In a railway car coupler, the combination with a head having a knuckle pivotally mounted therein, of a rigid projection on the head at one side of said knuckle having a rearwardly and outwardly inclined face, a rigid guard arm on the opposite side of said knuckle and having a forwardly and outwardly inclined face, extending beyond the plane of the knuckle for holding the knuckles in engagement, a nose piece pivoted on the guard arm and having its inner face formed as a continuation of the inner face of the guard arm, the nose pieces and projections of coöperating couplings being adapted to resist pivotal movement of the coupling heads upon each other.

4. In a railway car coupler, the combination with a coupler head having a knuckle pivotally mounted therein, of a rigid projection on the head at one side of said knuckle having a rearwardly and outwardly inclined face, a rigid guard arm on the opposite side of said knuckle and having a forwardly and outwardly inclined face for holding the knuckles in engagement and a

yielding nose piece pivotally mounted on and forming a continuation of the guard arm extending beyond the plane of the knuckle, the nose pieces and projections of
5 cooperating couplers being adapted to resist pivotal movement of the coupler heads upon each other.

10 5. The combination of couplers having coupler heads and pivoted knuckles shaped to interlock together, rigid forwardly and outwardly projecting guard arms having operative faces for preventing the disengagement of the knuckles, yielding nose
15 pieces having inner faces forming extensions of the operative faces of guard arms and inclined faced projections on the heads in rear of the knuckles with which projec-

tions the nose pieces cooperate to resist pivotal movement of the heads with relation to each other.

20 6. In a car coupler, the combination with the coupler head and knuckle pivotally mounted therein, of the rigid guard arm for holding the cooperating knuckles in engagement, a hollow nose piece pivotally
25 mounted on the end of the guard arm, and a spring located within the nose piece for holding the same advanced to resist the rotative pivotal movement of cooperating couplers.

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