R. E. L. JANNEY.

CAR COUPLING AND PIVOT PIN THEREFOR.

APPLICATION FILED NOV. 27, 1911.

1,075,426. Patented Oct. 14, 1913.

Fig. 1

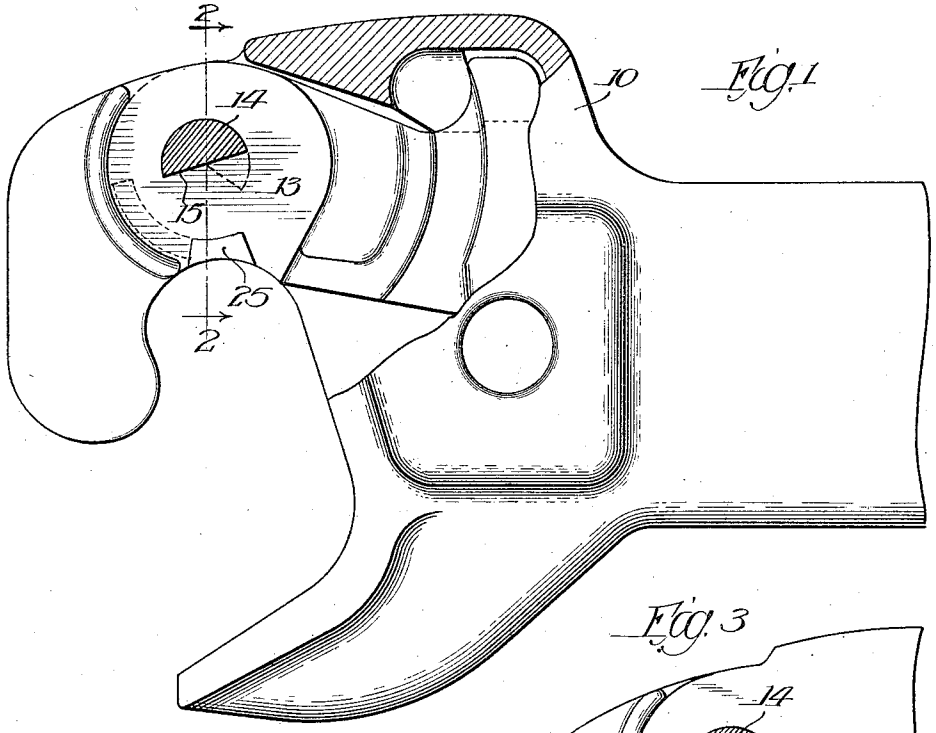


Fig. 3

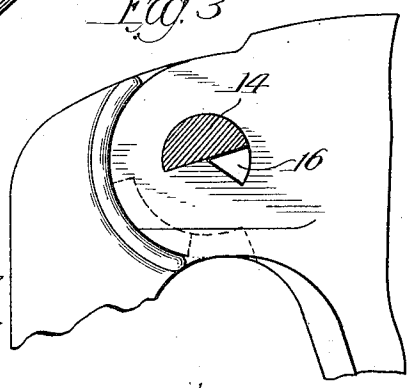


Fig. 2

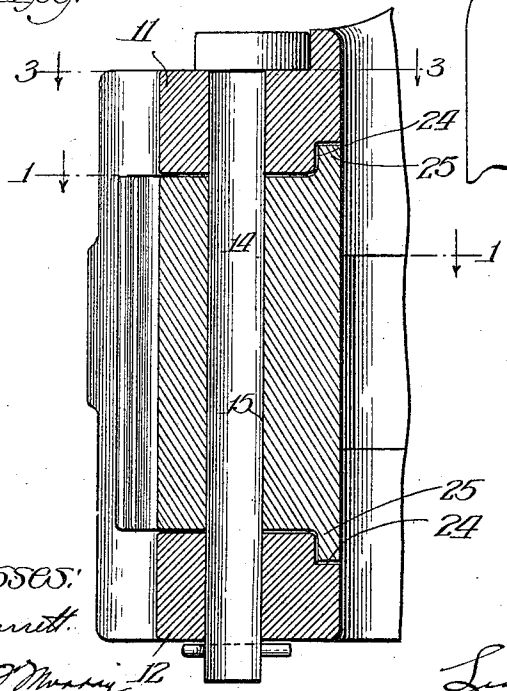
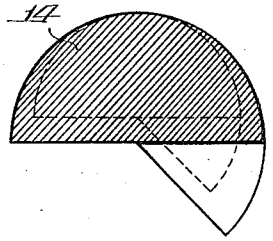


Fig. 4



Witnesses:
H. G. Barrett.
Chas. J. Murray.

Inventor:
Robert E. L. Janney
Lunsbury Belt & Dulles
Attys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT E. L. JANNEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN STEEL FOUNDRIES, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

CAR-COUPLING AND PIVOT-PIN THEREFOR.

1,075,426. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed November 27, 1911. Serial No. 662,571.

To all whom it may concern:

Be it known that I, ROBERT E. L. JANNEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers and Pivot-Pins Therefor, of which the following is a specification.

My invention relates to car couplers and has reference to a novel means for pivoting the coupler knuckle to the head.

To meet the service requirements of the present day car couplers have been strengthened materially in their several lines, attention being paid particularly to the strains produced by direct pulling and buffing in the longitudinal axis of the couplers. However, it has been found that there is a considerable side strain transmitted through the coupler knuckle, this side strain being produced sometimes by the passing of coupled cars around curves but oftener it is the component of a stress applied theoretically in a line with the longitudinal axis but deflected due to the non-alinement of the couplers or because of unequal striking or pulling surfaces.

Therefore one of the principal objects of the present invention is to strengthen the coupler, particularly the knuckle hub, in a transverse line. It will be apparent, of course, that the knuckle hub and lugs might be strengthened by the addition of metal or by lessening the diameter of the pivot pin hole. Neither modification can be made for the reasons, first, that the enlargement of the hub and lugs would produce mismating with other couplers, and, second, that any material decrease in the size of the knuckle pivot pin would limit the resistance of the coupler to pulling and buffing. Therefore I have designed a construction wherein the increased metal necessary for greater transverse strength is secured, retaining, however, practically all the strength of the pin in the line of direct pulling or buffing. This is secured by making the opening and the pivot pin non-circular in cross-section. This cross-section may be semi-circular, oval or oblong, the portion of the pin passing through the knuckle hub preferably fitting the opening snugly while the opening through the lugs being enlarged to permit the necessary swing of the knuckle.

A further object is to provide in connection with the knuckle and lug, strengthening means whereby the metal removed from the pin in a transverse direction is compensated for and practically all side strains taken from the pin. Furthermore, by the use of the construction herein described, I am enabled to use a pivot pin of much greater diameter through its major axis without materially reducing the metal transversely of the coupler and lugs.

My invention will be more readily understood by reference to the accompanying drawings, wherein,

Figure 1 is a top plan partly in section, showing a coupler of conventional design having my novel pivot pin applied thereto. The sectional portion of the view is taken on the line 1—1 of Fig. 2; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a fragmentary section on the line 3—3 of Fig. 2; Fig. 4 is a diagrammatic view illustrating how I am enabled by the use of a large pin to secure increased strength in the line of pull and buff without materially decreasing the transverse strength through the knuckle hub.

Referring more particularly to the drawings it will be seen that to a coupler head 10, having an upper knuckle attaching lug 11, and lower attaching lug 12, I pivot a knuckle 13, by means of a pivot pin 14. This pivot pin is non-circular in cross-section, in this instance being semi-circular, the opening 15 through the knuckle hub being of substantially the exact size and shape of the pivot pin. Of course, if the openings through the coupler lugs were also of the size of the pin it would not be possible to rotate or swing the knuckle. Therefore I cut out a segment 16, by means of which the knuckle is permitted its required movement, which is usually less than a quarter turn. It will thus be seen by reference to Fig. 1 that I secure in the hub of the knuckle, an amount of metal equal to half the area of the pin, while in the lugs as shown in Fig. 3, I secure added metal equal to half the area of the pin less the cut-out 16. However, this would tend to weaken the pivot pin in line with the longitudinal axis of the coupler. For this reason I prefer to use a larger pin, preferably a two inch instead of the standard one and five-eighths inch pin. As will be seen by reference to Fig. 8, the use of such pin will materially increase the amount

of metal available against stresses in line with the longitudinal axis without materially decreasing the amount of metal in the hub and lugs attached for use against transverse strains. It will be seen that I have in this manner strengthened the coupler hub in a transverse direction and have not materially weakened the pin in line with a direct pull or buff. However, the pin has been weakened to a certain extent in a transverse direction and to compensate for this I provide in the top and bottom lugs on their inside faces, arc-shaped grooves 24. These grooves extend around the periphery of the lugs for a distance equal substantially to a quarter turn of the knuckle. Coöperating with this groove are lugs 25 formed integral with the knuckle hub as shown in Fig. 2. By this means the knuckle hub is not weakened and the strain which would otherwise be transmitted to the pin in a transverse direction is taken up.

The form of the pin and of the opening through the knuckle hub and lugs, of course, is not important, it being essential only that the pin is elongated substantially in line with the longitudinal axis of the coupler and its dimensions decreased transversely of the coupler.

Modifications in the form of the pin and as to other details may, of course, be made all without departing from the spirit of my invention.

I claim:

1. In a car coupler, the combination of a coupler head having knuckle attaching lugs, a knuckle, said lugs and knuckle having registering perforations, the perforation through said knuckle being substantially semi-circular, and a pivot pin having for at least a portion of its length a cross-section conforming to the area of the perforation in said knuckle, substantially as described.

2. In a car coupler, the combination of a coupler head having knuckle attaching lugs, a knuckle, said lugs and knuckle having registering perforations, the perforation through said knuckle being substantially semi-circular and having its major axis substantially in line with the longitudinal axis of said head, and a pivot pin having for at least a portion of its length a cross-section conforming to the area of the perforation in said knuckle, substantially as described.

3. A car coupler including a coupler head having knuckle attaching lugs, a knuckle, said lugs and knuckle having registering perforations, the width of the knuckle perforation transversely of the head being less than the width of said perforation longitudinally of the head, a combined draft and pivot pin conforming in shape to and fitting snugly in the perforation of the knuckle, and means to relieve strains from the pin transversely of the coupler, substantially as and for the purpose described.

ROBERT E. L. JANNEY.

Witnesses:
CHAS. F. MURRAY,
T. D. BUTLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."