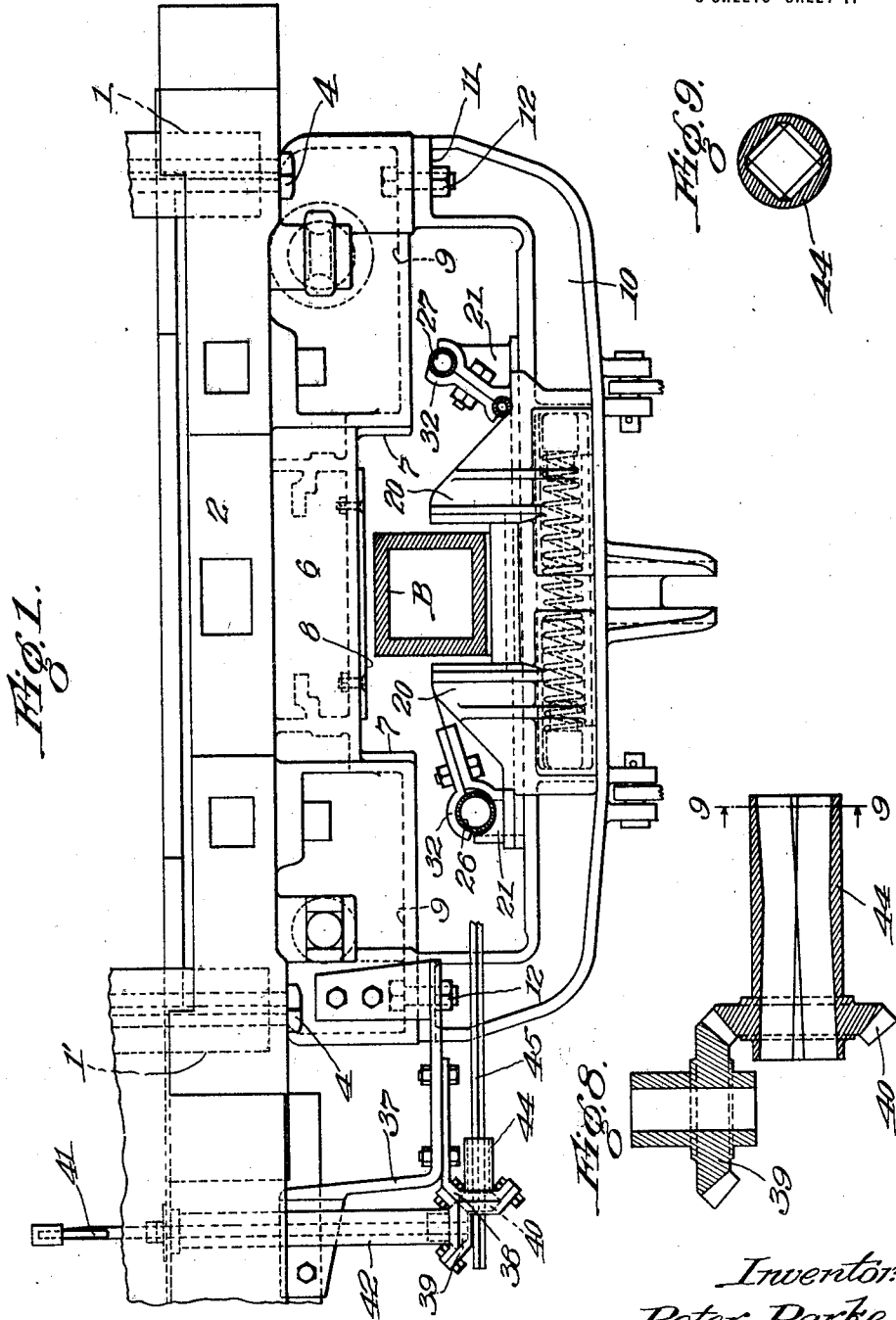


1,431,750.

Patented Oct. 10, 1922.
3 SHEETS—SHEET 1.

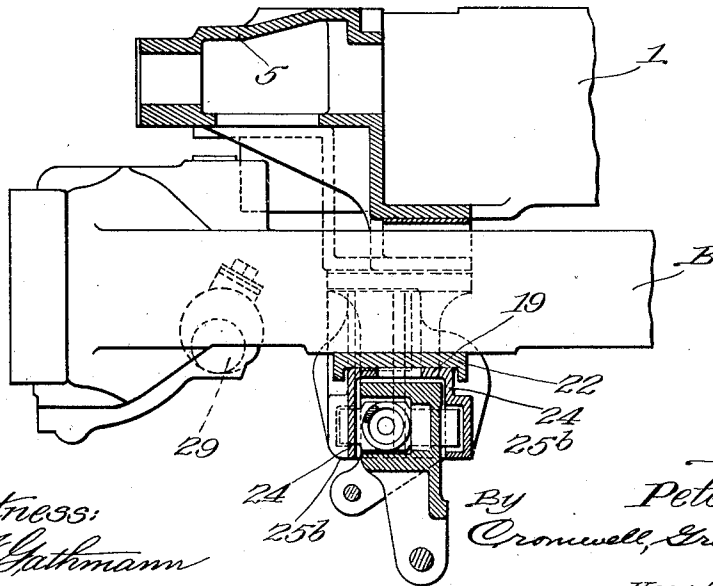


Witness:
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By *Cromwell, Hunt & Warden*
His Attorneys:

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1,431,750.

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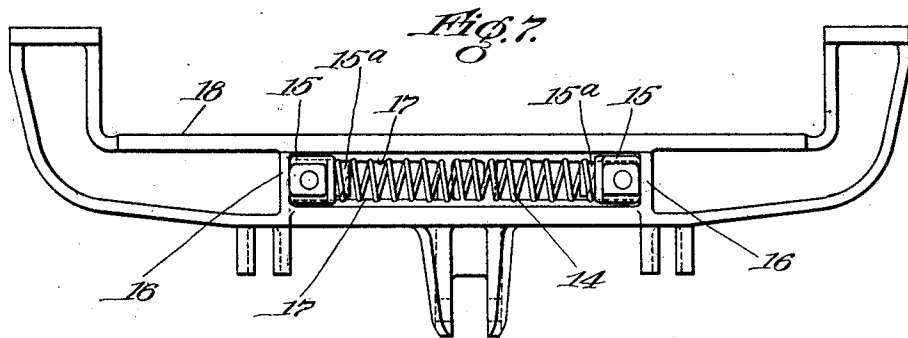
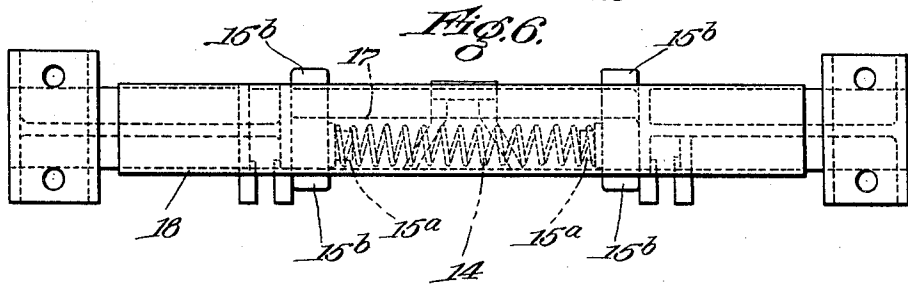
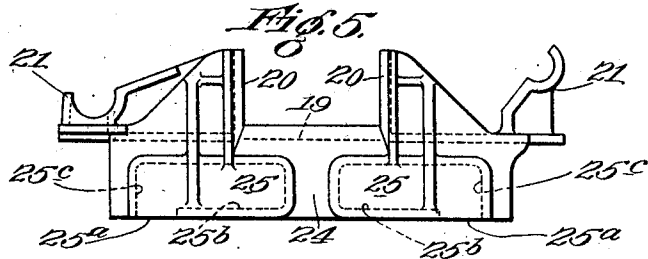
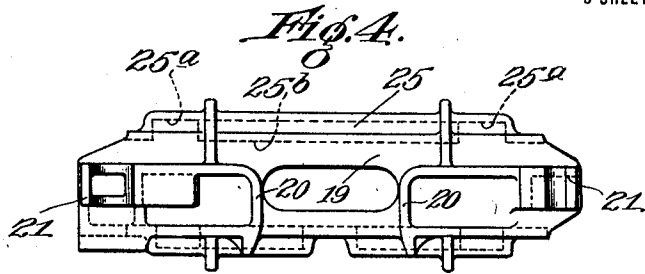
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256

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1,431,750.

Patented Oct. 10, 1922.
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

PETER PARKE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PULLMAN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GEAR FOR CAR CONNECTIONS.

Application filed December 11, 1920. Serial No. 429,869.

To all whom it may concern:

Be it known that I, PETER PARKE, 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 Gears for Car Connections, of which the following is a specification.

This invention pertains generally to railway rolling stock, and particularly to improvements in gear forming a mounting and guide for laterally movable members, such as the draw-bar, steam and air pipes, which are connected from car to car when the cars are coupled together in a train.

As is well known in the art, the draw-bar in a railway draft gear is permitted a certain amount of lateral movement to accommodate changes in the angularity of cars in rounding curves and the like. The steam, brake and signal pipes customarily terminate adjacent the coupler head at the end of the car, where they carry angle-cocks from which hose connections join the pipes on the coupled cars. The distance between the connections on the opposite sides of the coupler is fixed by standard specification, in order to secure uniformity and insure operability of standard connection hose lengths with all cars. In cars of standard construction, when certain accepted coupler heads of large size are used, there would be likelihood of the angle-cocks being broken off or the pipes bent by pressure from the coupler head upon its movement to its lateral positions. Heretofore special mountings for the ends of the pipes have been suggested to permit their lateral movement to clear the coupler head. My present invention is designed to accomplish such function by means of an improved construction, and is further effective to restore and center the shifted pipe portions without placing any stress upon their connections. Furthermore, it is necessary to impose limits to the lateral movement of the pipe portions without subjecting them or other mountings to resistance which would tend to distort or fracture them, and the present invention accomplishes this in connection with the provision of lateral draft abutments upon which the draw-bar becomes effective in rounding curves, for the purpose of drawing the car laterally in making the necessary change of direction.

The general object of the invention, there-

fore, resides in the provision of an improved gear mounting which secures a cooperation between the draw-bar, shiftable pipe supports, centering or restoring means and lateral draft abutments, whereby a desired shifting of the pipes and their connections may be accomplished to maintain proper clearance between them and the coupler-head, to protect the pipes and their mountings from the imposition of injurious strains while permitting the desired lateral draft pressure from the draw-bar upon the car underframe.

A more particular object of the invention is to provide a particularly strong and readily assembled construction wherein a single centering mechanism is effective conjointly upon the draw-bar and the several pipes.

Another particular object of the invention is the provision of a construction wherein the several movable and supported parts are housed, or effectively protected from injurious impacts, by a carry-iron which also affords the desired support for the shiftable members.

A further object is the provision of a construction effective for the intended purpose and which is also effective to prevent the transmission of injurious stresses to the pipes and their mountings incident to draft or buffing movements of the draw-bar and coupler-head.

An incidental object of the invention is the provision of an operative connection whereby the valves or cocks carried by the shiftable pipe members are permitted the intended movement and may be operated from the car platform.

Other and further objects of the invention will be designated hereinafter, indicated in the appended claims, or will be obvious upon an understanding of the invention as explained by reference to the illustrative embodiment constituting the present disclosure. It is to be understood that the particular embodiment herein disclosed, while now regarded as a preferred form of the invention, is not to be construed as exhaustive of the scope of the invention, or as imposing limitations upon its range of variation and adaptation short of the true scope which it occupies in the art.

In the drawings which form a part of this specification, Fig. 1 is a detail sectional elevation of an end portion of a car, terminat-

ing substantially at the platform level and including parts comprised in my invention, the section being taken substantially on line 1—1 of Fig. 2;

5 Fig. 2 is a horizontal section showing in plan certain parts of an embodiment of my invention in conjunction with associated car parts;

10 Fig. 3 is a vertical section taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a top view of the saddle member;

Fig. 5 is a front elevation of the same;

15 Fig. 6 is a top view of the carry-iron with the saddle member and supported portions removed, but showing the centering spring and followers;

Fig. 7 is a front elevation of the same;

20 Fig. 8 is a longitudinal section of the gear for operating the valve shift; and

Fig. 9 is a section substantially on line 9—9 of Fig. 8.

Referring to the drawings by means of the reference characters applied, let it be understood that the numeral 1 designates longitudinal sills constituting portions of the car underframe to which the buffer sill 2 may be connected as described in my U. S. Patent No. 1,176,310, and 1^a designates end post portions connected to the buffer sill by gibs 4. This buffer sill includes the housing 5 for the stems of the vestibule side and center buffer, and a depending portion 6 having deepened lateral parts providing inwardly facing draw-bar abutment stops 7. The space between the abutments 7 is that necessary to accommodate the intended lateral play of the draw-bar, and the depth of said lateral portions is sufficient to extend a substantial part of the height of the draw-bar and afford substantial bearing area. The central part of the depending portion affords attachment for the wear plate 8, and the lateral portions have bottom webs 9 which afford mountings for the ends of the carry-iron 10. The carry-iron is a substantial casting of general U shape with attaching flanges 11 at the extremities of its arms whereby it may be mounted on the webs 9 by bolts 12. As best seen in Figs. 6 and 7, the central portion of the transverse bar of the carry-iron is cored to provide a housing for the centering spring 14 and its followers 15, said housing terminating in webs 16 which form abutments limiting outward movements of the followers 15. The housing is open at front to permit insertion of the followers and spring, and has inset portions 17 at its rear to afford longitudinal guides and retaining members effective to prevent rearward displacement of the followers. The followers have bosses 15^a on which the spring 14 is centered and retained, and forwardly and rearwardly projecting lugs 15^b which extend beyond the

front and rear surface limits of the carry-iron. The upper surface of the transverse bar of the carry-iron is finished with a substantially horizontal bearing face 18 terminating adjacent the lateral arm, and slidably supported thereon is a saddle member, which is best illustrated in Figs. 4 and 5. This saddle member is formed on a slide base 19 from which flanges rise to provide lateral draw-bar engaging lugs 20 and pipe brackets 21 disposed at opposite sides of the draw-bar engaging lugs. The draw-bar engaging lugs are spaced apart a suitable distance to accommodate the shank of the draw-bar with a sufficient clearance to permit draft and buffing movement thereof, and between said lugs a wear-plate 22 is arranged to support the draw-bar, said wear-plate being retained by terminal depending portions, as illustrated in Fig. 3. Depending from the base plate 19 are webs 24 designed to abut the front and rear faces of the transverse bar of the carry-iron, and said webs are formed with front and rear housing portions 25 designed to accommodate the protruding lugs 15^b, said housings being open at the bottom adjacent their extremities as at 25^a to permit insertion of the follower lugs, and having inwardly extending flanges 25^b throughout the balance of their lengths arranged to slide under the lugs of the followers. The outer limits of these housings are formed by webs 25^c forming abutments for engagement against the follower lugs. The centering spring and followers being placed in the carry-iron under an initial loading or compression of the spring, as shown in Fig. 7, the saddle may be assembled over them from above to the position illustrated in Figs. 1 and 3, where in the base-plate 19 rides upon the bearing surface of the carry-iron, and the centering spring and its followers are completely housed and retained against displacement, by the depending webs 24. The wear-plate 22 then being placed on the base plate 19 between the draw-bar engaging lugs, the carry-iron may be assembled with the buffer sill by means of the bolts 12, the lugs 7 being disposed at opposite sides of the draw-bar B.

It will be understood that the steam pipe 26, the air pipe 27 and the signal pipe 28 are supported from the car underframe by hangers in the customary fashion, and their extremities brought out adjacent the draft gear at the prescribed distance from the center line of the car. At a suitable distance from its terminus, the steam pipe is broken by a universal coupling 26^a which permits free movement of the terminal portion of the pipe. Similar couplings may be inserted in the other pipes, if desired, or if they are of such size as to render it necessary to provide the desired flexibility. The

steam pipe carries at its extremity the valve cock 29, and the air and signal pipes carry the customary angle-cocks 30 and 31. Such cocks are adapted for connection to similar
 5 cocks on coupled cars by means of the usual hose connections. The length of the carry-iron is sufficient to embrace the pipes on both sides of the draft gear and to permit the necessary degree of lateral movement
 10 between the ends of the brackets 21 and the upright arms of the carry-iron, and the clearance between the lateral arms of the carry-iron and the extremities of the brackets 21, when the saddle is in center position, is greater than the clearance between the
 15 sides of the draw-bar shank and the draw-bar abutment lugs 7. The pipes, where they cross over the carry-iron, are mounted in the brackets 21 and retained by suitable clamps 32, so that they will be shifted laterally
 20 upon the lateral sliding movement of the saddle upon the carry-iron.

In operation, the pipes and draw-bar being mounted as above described, and coupled
 25 to similar parts on an adjoining car in a train, upon rounding a curve, the lateral draft upon the coupler-head will swing the draw-bar inwardly of the curve, and slide the saddle laterally upon the carry-iron until the draw-bar comes up against one
 30 of the lugs 7. In such operation any longitudinal movement of the draw-bar is permitted without its binding or wrenching the saddle or carry-iron. Such lateral movement of the saddle will shift all of the pipes
 35 in the same direction as the coupler is shifted, thus keeping the cocks toward the inside of the curve clear of the coupler-head, and bringing over the cocks on the other side so
 40 as to keep them within the proper radius to prevent straightening of the hose connections. Such lateral shifting of the saddle will compress the centering spring, due to the fact that the outside centering spring
 45 follower will be engaged by the webs 25^c and moved laterally against the influence of the spring toward the opposite follower. The lateral shifting of the saddle will be limited by the coming up of the draw-bar
 50 shank against the abutment 7 toward the inside of the curve, by which bearing the necessary force will be transmitted to the buffer sill and from it to the car underframe to deflect the end of the car around the
 55 curve, and such abutment of the draw-bar shank against the portion 7 will be effective to positively limit the lateral shifting of the saddle, so that the bracket 21 will not be stressed against the upright arm of the
 60 carry-iron. The relief of the lateral traction on the draw-bar, due to the straightening out of the cars, leaves the follower spring free so that its energy will be effective to restore the saddle toward the center position, and
 65 with it the pipes and the draw-bar. Such

operation, therefor, is effected without throwing any dangerous or injurious strain upon the pipes, the hose connections, or the shiftable mountings.

As a means to permit operation of a cock, 70 such as the steam valve cock, from the platform of the car, an operating connection such as illustrated in Figs. 1, 2, 8 and 9 may be provided. Upon a bracket 37 suitably secured to the buffer sill or platform
 75 end is a gear housing 38 in which are mounted the meshed bevel gears 39 and 40. The former is carried on an operating shift 41 which extends up through a guide pipe 42 to a proper position on the platform. The
 80 bevel gear 40 carries a horizontally extending sleeve 44 having a flared polygonal bore. Slidably mounted in said bore is a polygonal rod 45 which is connected by a universal joint 46 with the valve stem of the steam
 85 cock.

The slidable mounting of the rod 45 in the sleeve 44 accommodates the lateral movement of the steam cock while maintaining the operative connection whereby rotation of
 90 gears 39 and 40 will be effective to rotate the rod 45 to open or close the steam cock, and the universal joint 46 and flared form of the bore of the sleeve 44 will accommodate the angular movement of the rod 45
 95 incident to the oscillatory movement of the steam cock. Hence opening or closing of the steam cock may be effected irrespective of its lateral position relative to the carry-iron. 100

I claim:

1. In a car construction including a movable draw-bar, a combination comprising a carry-iron for movably supporting the
 105 draw-bar, a saddle movable on the carry-iron by the draw-bar, mountings on the saddle for supporting the train service pipes within the carry-iron for movement with the saddle, and means for limiting delivery of lateral pressure to the carry-iron from
 110 the draw-bar and the saddle.

2. In a car construction including a movable draw-bar, a combination comprising a carry-iron for movably supporting the
 115 draw-bar, a saddle movable on the carry-iron by the draw-bar, mountings on the saddle for supporting the train service pipes for movement within the carry-iron and means for limiting lateral movement of the
 120 draw-bar independently of the carry-iron and saddle.

3. In a car construction including a laterally movable draw-bar and associated pipe portions, a combination comprising a laterally movable saddle supporting the draw-bar
 125 and pipe portions, a carry-iron spanning the pipe portions and supporting the saddle portions affording operative engagement between the draw-bar and the saddle whereby the latter is moved to maintain the relation- 130

ship of the pipe portions and draw-bar and means effective upon the draw-bar to limit lateral movement of the saddle.

4. In a car construction including a laterally movable draw-bar and associated pipe portions, a combination comprising a saddle supporting the draw-bar and pipe portions, a carry-iron spanning the pipe portions and supporting the saddle for lateral movement, portions affording operative engagement between the draw-bar and the saddle whereby the latter is moved to maintain the relationship of the pipe portions and draw-bar, centering means for centering the saddle on the carry-iron, and means cooperating with the draw-bar to limit lateral pressure of the saddle upon the centering means.

5. In a car having a draw-bar and associated pipe portions, a combination including a buffer sill affording lateral draft abutments for the draw-bar, a saddle forming a movable carrier for the draw-bar and pipe portions and a carry-iron extending below said abutments and pipe portions and forming a support for the saddle, the draw-bar and pipe portions.

6. In a car having a draw-bar and associated pipe portions, a combination including a buffer sill affording lateral draft abutments for the draw-bar, a saddle forming a movable carrier for the draw-bar and pipe portions, and a carry-iron extending below and forming a support for the saddle, the draw-bar and pipe portions.

7. In a car having a draw-bar and associated pipe portions, a combination including a buffer sill attached to the car underframe and affording lateral draft abutments for the draw-bar, a saddle forming a movable carrier for the draw-bar and pipe portions, and a carry-iron mounted on the buf-

fer sill and forming a support for the saddle, the draw-bar and pipe portions.

8. In a car having a draw-bar and associated pipe portions, a combination including a buffer sill having depending portions affording lateral draft abutments for the draw-bar, a saddle forming a movable carrier for the draw-bar and pipe portions, and a carry-iron mounted on the buffer sill and forming a support for the saddle, the draw-bar and pipe portions.

9. In a car construction, a combination comprising a sill member arranged for attachment to the underframe, said sill member having depending portions forming lateral abutments for the draw-bar, a carry-iron arranged for support on the underframe below the sill member, and a saddle mounted for lateral movement on the carry-iron and having pipe supporting portions movable transversely below said depending portions of the sill.

10. In a car construction including a laterally movable draw-bar and pipe valve, a combination comprising a carry-iron, a saddle laterally movable thereon and affording operative connection between said pipe valve and draw-bar whereby the former may be moved to different positions by the draw-bar, a manipulative device mounted on the car, and operative connections between said manipulative device and pipe valve whereby the latter may be operated by said device irrespective of its position.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

PETER PARKE.

Witnesses:

W. M. MARTINSON,
G. R. DIXEY.