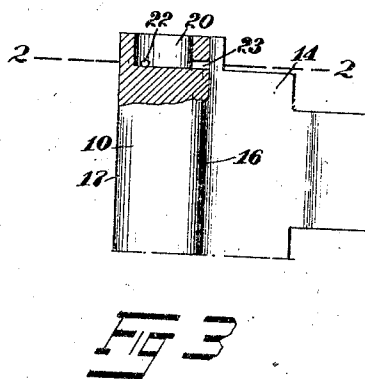
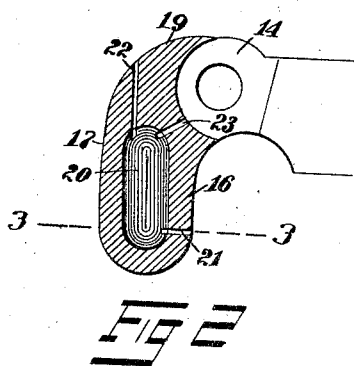
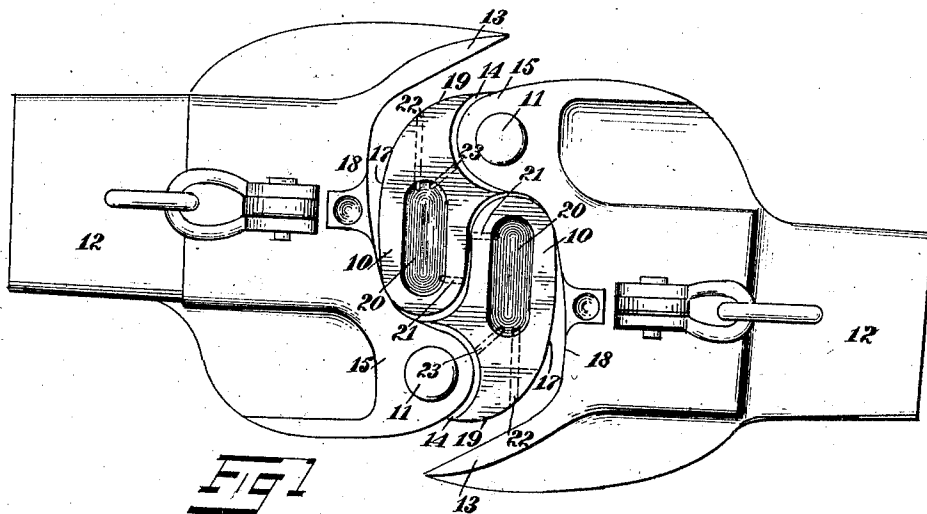


984,997

J. A. BEAMER.
CAR COUPLING.
APPLICATION FILED JUNE 16, 1909.

Patented Feb. 21, 1911.



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JAMES A. BEAMER, OF TYRONE, PENNSYLVANIA.

CAR-COUPLING.

984,997.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES A. BEAMER, a citizen of the United States, and a resident of Tyrone, in the county of Blair and State of Pennsylvania, have invented a new and Improved Car-Coupler, of which the following is a full, clear, and exact description.

In car couplers of the Master Car-Builders' type in which there are provided oppositely-disposed hooks or knuckles which interlock but hold the couplers together, there is no provision made for any lubrication except the lubrication of the locking mechanism and the knuckle pin. When two couplers are locked together in a train, there is a continuous movement of one coupler in respect to the other while the train is in motion. This movement is due to the difference in the action of the springs of the two cars, a movement of one car in respect to another as the train rounds a curve, and a movement due to the difference in the swaying of the cars. The entire force required to draw a car and all of the cars in the rear thereof, is transmitted through the coupler, and the two adjacent faces of the knuckles are pressed into contact with each other with enormous force. The relative movement of one coupler in respect to the other tends to grind these faces over each other, so as to wear out the knuckle in a comparatively short time. In order to avoid this wearing by the grinding action of the knuckles, I contemplate lubricating the working faces of the coupler, and the object of my invention is to so construct the coupler that this lubrication may be brought about with the minimum change in the construction of the coupler contour lines, or increase in the expense of manufacture thereof, and whereby all of the rubbing or working faces will be lubricated from a single source of supply.

By lubricating the knuckles they are permitted to move in respect to each other with greater facility, and I thus avoid damage to parts which support the coupler. A further advantage in the lubrication of the couplers, will be to permit cars to more easily go around curves, and thus avoid wear on the flange of car wheels and upon the rail.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of refer-

ence indicate corresponding parts in all the figures, and in which—

Figure 1 is a top plan view of two interlocked couplers constructed in accordance with my invention; Fig. 2 is a horizontal section through a portion of the knuckle, said section being taken on the line 2—2 of Fig. 3; and Fig. 3 is an edge view of the knuckle, a portion thereof being broken away on the line 3—3 of Fig. 2.

As far as the main features of the coupler are concerned, I do not contemplate departing in any way from the ordinary coupler now in use, and inasmuch as my invention does not relate to the main features of the coupler, it is evident that these features may be varied widely without departing from the spirit of my invention.

I have illustrated two couplers of the Master Car-Builders' type substantially in locked or operative position, and each having a knuckle 10, a knuckle pin 11, and a draw-bar or shank 12. The draw-bar or shank is provided with a guard arm 13, extending outwardly and disposed opposite to the free end of the knuckle when the latter is in closed position. Each knuckle has a supporting portion 14, through which the knuckle pin 11 extends, said supporting portion preferably extending between two lugs or extensions 15 of the shanks, and through which the knuckle pin also extends. All of these features are common to most couplers and further description of their details is thought to be unnecessary.

The knuckle when in its locked position extends transversely of the general direction of the coupler and has two substantially parallel transversely-extending faces 16 and 17, the former of which is opposite to the end face 18 of the shank, and the latter of which comes adjacent to or in contact with the face 18 of the other coupler. The faces 16 of the two locked knuckles are the two which are under greatest pressure and sustain the load in the pulling of the train. As the train goes around a curve, these faces rub over each other to a slight extent. As the one car sways laterally, there is a corresponding, although slight, rubbing action between these two faces, and also when one car body rises and falls with the expansion and compression of the springs, there is still a different relative movement of these two

faces. The rear or back end or face 19 of the knuckle, that is, the face opposite to the free end of the knuckle and adjacent the knuckle pin, lies closely adjacent the guard arm 13 of the opposite coupler. The strain between these two faces is not as great as that between the opposite faces 16, 16, yet at the same time these faces are continuously contacted with each other during the coupling and uncoupling of the cars, and they are also being continuously rubbed over each other when the car is traveling or frequently changing its speed. The third point at which wear occurs chiefly on the coupler, is on and about the knuckle pin. All movements of the knuckle in coupling and uncoupling the cars creates a friction, or rubbing on the pin, and all of the strain in pulling the car is transmitted from the knuckle to the knuckle pin.

In order to provide for the constant and automatic lubrication of all of these working faces, I provide each knuckle with a chamber, compartment or recess 20, in the upper portion thereof and extending lengthwise of the knuckle, that is, transversely of the coupler. This chamber does not extend down into the knuckle a sufficient distance to materially weaken the latter, but only sufficient to constitute an oil chamber into which cotton waste or other absorbent may be packed and saturated with oil. Extending from this lubricant chamber I provide three passages leading to the three points which it is desired to lubricate. One of these passages, 21, extends from the lubricant chamber 20 through the wall to the face 16 of the coupler. The opening terminates adjacent the upper edge of the knuckle, so that any lubricant which escapes through this opening will flow down over the surface 16 and effectually lubricate the latter. A second passage 22 extends from the chamber 20 out through the rear or heel of the knuckle to the face 19 at a point where the latter rubs against or frictionally engages with the guard arm 13. The third passage 23 extends from the chamber 20, through the wall of the knuckle to the upper surface of the supporting portion 14 adjacent to the knuckle pin. The lubricant which flows through this passage comes in contact with the upper surface of the supporting portion 14 and the under surface of the lug or projection 15 of the shank. The lubricant here works its way to the knuckle pin to effectively lubricate the latter. Thus, by providing a single chamber and locating it in the knuckle in the particular place illustrated and above described, I secure the lubrication of all of the working surfaces of the coupler with only a single

lubricant chamber and with the passages of the shortest possible length. It will be noticed that the passages or channels 21 and 23 extend to the surfaces they are to lubricate from a reservoir within the knuckle; and the channels 21, extend in meeting knuckles, when the parts are coupled as shown in Fig. 1, in reverse directions; that is to say, the channel 21 of one knuckle, see Fig. 1, will extend to the right and the channel 21 of the coupled knuckle will extend to the left from its respective reservoir so that if the coupled draw heads be moving in operation in one direction or the other there is always one channel 21 extending from its reservoir rearwardly, with respect to the direction of motion, to the contacting surfaces between the two knuckles. This is important as thereby the movement of the draw heads in either direction will effect a positive feed of lubricant from the forward one of the knuckles to the inner meeting or contacting faces of the two knuckles. This result, as before suggested, is important and follows the production of the reservoir in the knuckles and the provision of channels leading from said reservoirs to the contacting faces of the knuckles as before described. It is evident that this chamber may be increased or decreased in size or varied in shape, without departing from the spirit of my invention, or a greater or lesser number of passages might be employed, but I preferably construct the lubricating features of the coupler substantially as above set forth.

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

A car coupler comprising two similar draw heads and pivoted knuckles, the latter having each a lubricant chamber and provided adjacent to the upper end thereof with lateral passages extending from their respective chambers to the pivotal bearing surfaces between the corresponding knuckles and draw heads, and also having passages leading from their respective chambers to the inner meeting faces of the knuckles whereby the movements of the knuckles will effect a feed of oil to the contacting surfaces and the movements of the draw heads in either direction will effect a feed of oil from the forward knuckle to the inner meeting faces of the knuckles.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. BEAMER.

Witnesses:

D. T. CALDWELL,
A. R. BARR.