(No Model.)

M. GENG.

RAILWAY CHAIR.

No. 458,230. Patented Aug. 25, 1891.

Fig. 1.

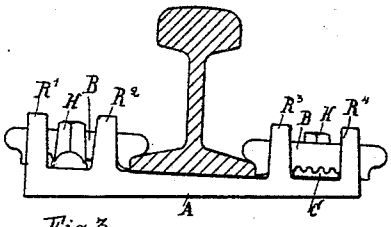


Fig. 2.

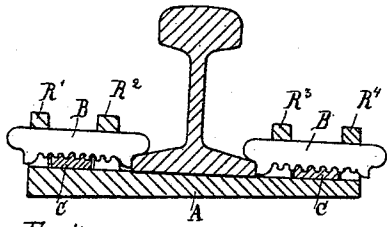


Fig. 3.

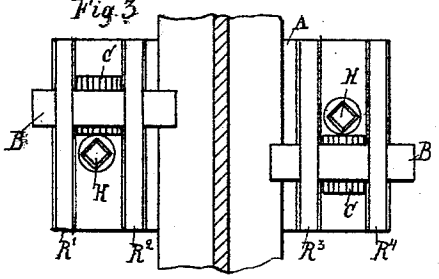


Fig. 4.

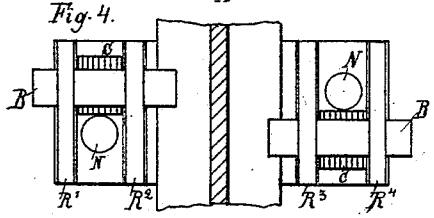


Fig. 5.

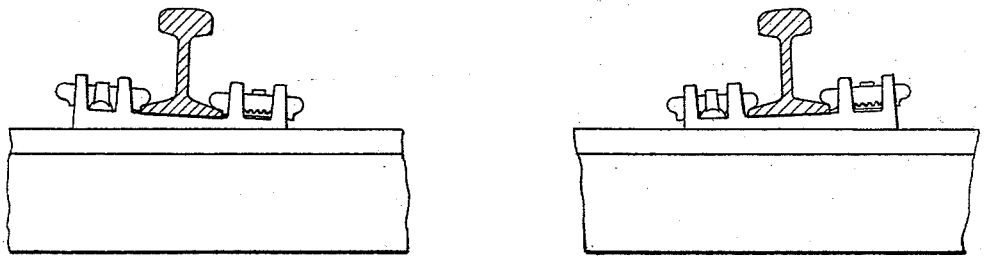
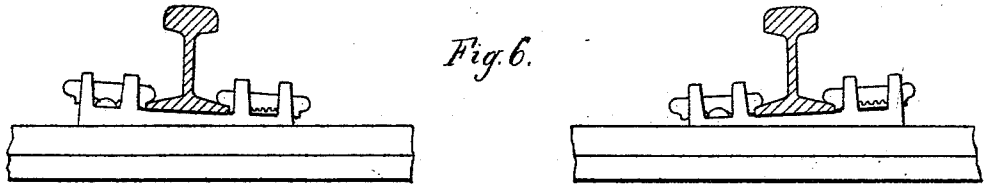


Fig. 6.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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RAILWAY-CHAIR.

SPECIFICATION forming part of Letters Patent No. 458,230, dated August 25, 1891.

Application filed May 12, 1891. Serial No. 392,423. (No model.)

To all whom it may concern:

Be it known that I, MATHIAS GENG, a subject of the King of Prussia, residing at Cologne on the Rhine, Prussia, German Empire, have invented new and useful Improvements in Railway-Chairs, of which the following is a specification.

This invention relates to an improved construction of chair or fastening for flanged railway-rails in which the rails are secured in position by means of keys or dogs having serrated surfaces, into which take correspondingly-serrated surfaces on locking-plates, such fastening being applicable to all kinds of flanged rails, whether used with wooden or with iron sleepers.

The construction of such chair-fastening will be readily understood by reference to the accompanying drawings, in which—

Figure 1 shows a front view of the chair-fastening; Fig. 2, a cross-section; Fig. 3, a plan of the arrangement for wooden sleepers; Fig. 4, a plan of the arrangement for iron sleepers. Fig. 5 shows a general front view on a smaller scale for wooden sleepers, and Fig. 6 the same for iron sleepers.

The chair-fastening consists of five separate parts, namely: first, the chair proper A; second, the two toothed keys or dogs B, and, third, the two toothed locking-plates C.

The chair A is either of rolled iron or steel or of a steel casting and is of rectangular form in plan, while in cross-section its bedplate is of a tapering or wedge shape, on which are four projecting ribs R' R^2 R^3 R^4, that are slotted for the reception of the keys. The four ribs form between them three trough-like spaces, of which the greater (middle) one is intended to receive the rail, while the two smaller side ones receive the two toothed locking-plates C C. The surfaces of the bedplates of the two opposite chairs are so inclined toward each other that when fixed upon flat sleepers the rails have the requisite inward cant imparted to them thereby. The length of the chair in the direction of the rail is, as a rule, made greater for wooden sleepers than for iron ones, as shown in Figs. 3 and 4. The width of the middle trough is made so as to suit the widest flanged rail that may be used and to allow of the greatest variation in gage that may be required. The other dimensions are made in proportion to the required strength and practical construction of the chair.

The toothed keys or dogs B are formed of rolled metal of rectangular cross-section and consist of a toothed rack terminating at each end in rounded bearing-heads of unequal length, the keys being capable of being reversed in position. The difference in length of the two heads is exactly equal to half the pitch of the teeth or the width of a tooth, and this difference, in combination with the reversible arrangement, has for its object to enable the keys B to be adjusted to the extent of half the pitch of the teeth. The thickness of the teeth can be suitably made equal to four millimeters, and consequently the pitch eight millimeters. The sectional dimensions of the keys are made proportionate to their length and to the required strength. The hollow of the head which comes in contact with the rail is shaped to suit the particular rail to which it is applied. This is the only part of the chair-fastening which requires to be specially adapted to a particular rail.

The toothed locking-plates C are formed by rolling or pressing. They are in the form of a slightly-curved toothed rack, which terminates at one side in a tooth and at the other side in a plain space, so that the rack is unsymmetrical to the extent of one-fourth of the pitch. The width of the toothed plate is less to the extent of one-half the thickness of a tooth than the width of the corresponding trough of the chair. The toothed plate consequently has a corresponding amount of play, so that the key B is capable of having its position relative thereto varied at will.

The teeth of the plate C are rounded at both ends thereof, so as to facilitate their entrance into the teeth of the key B. Their length is suitably made about thirty millimeters greater than the width of the key.

When applying the above-described chair-fastening, the chair A is first fixed to the sleeper, in the case of wooden sleepers, by means of strong wood-screws H H, Fig. 3, and in the case of iron sleepers by two rivets N N, Fig. 4, such screws or rivets being situated in the two side troughs in diagonal positions,

near the opposite sides of the keys B, which are also placed diagonally. The rail having been placed in correct position as to gage in the middle trough, the outer key B is first placed in position with its one head bearing against the rail-flange, the direction in which its unsymmetrical heads are placed being so chosen that a greater or smaller portion of a tooth shall appear against the inner side of the outer rib R′. The plate-layer will see at once that if any considerable portion of a tooth projects the toothed locking-plate C will have to be introduced with that side presented toward the said rib on which the half-space is situated. The locking-plate is now driven in its curvature in the direction of its length, affording a certain amount of spring action, so that it will be more or less flattened down as it is driven in, and in consequence of the considerable pressure and frictional resistance exerted thereby, both against the key B and the chair A, it will be securely fixed in position, and in taking by means of its teeth any outward thrust exerted by the foot of the rail upon the key B it will transfer that thrust to the chair and sleeper.

The forcing back of the locking-plate or the removal of the rail is effected by means of a claw-shaped crow-bar.

With regard to the adjustment of the gage, it will be seen that within the above-indicated limits every desired gage can be fixed with the greatest accuracy, and will remain so fixed as long as the horizontal thrust of the rail does not exceed the considerable frictional resistance offered by the locking-plate, while in the event of this resistance being exceeded a widening of the gage to at most two millimeters can take place, namely until the locking-plate is made to abut with its outer edge against the side of the outer rib of the chair.

The above-described chair-fastening combines the following properties, as compared with existing constructions of a similar kind: Simplicity and durability of the several parts, strength and safety of the rail-fastening, preservation of the sleepers, and, lastly, ready general applicability. In consequence of the latter property the said construction enables the establishment of a thoroughly simple method of rail fixing, with perfect freedom as regards the kind of sleepers and rails employed. It also enables trials to be made with a mixed system of wood and iron transverse sleepers.

This improved chair-fastening therefore not only has for its object an improvement in the fastening of rails, but also a far-reaching simplification and further development of the whole system of permanent way with transverse sleepers.

Having now fully described and ascertained the nature of my invention, I now declare that what I claim is—

A chair-fastening for flanged railway-rails, applicable either with wooden or metal sleepers, consisting of the combination of a chair, such as A, having two ribs R′ R^2 and R^3 R^4 on each side of the rail, two toothed keys or dogs B B passing through slots in the said ribs, so as to bear with their hollowed heads against the flange of the rail, and two toothed locking-plates C C, which are driven in between the keys and the chair-bottom when the former have been adjusted in position, so as to securely lock them against lateral displacement, substantially as described.

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

MATHIAS GENG.

Witnesses:
CARL CRUN,
HUB HILGENBERG.