O. PAGAN.

Railway-Rail Joint.

No. 204,363. Patented May 28, 1878.

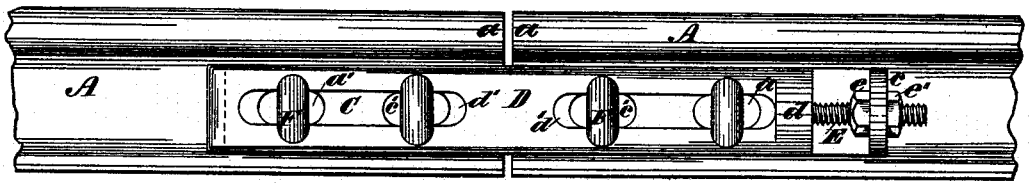

Fig. 1

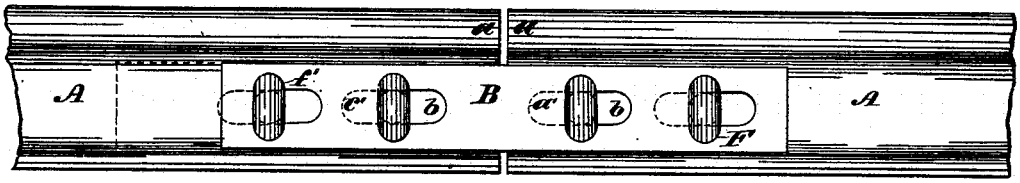

Fig. 2

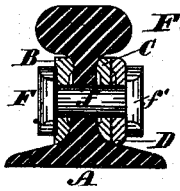

Fig. 3

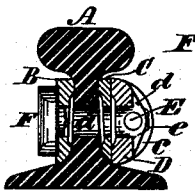

Fig. 4

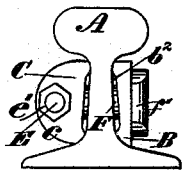

Fig. 5

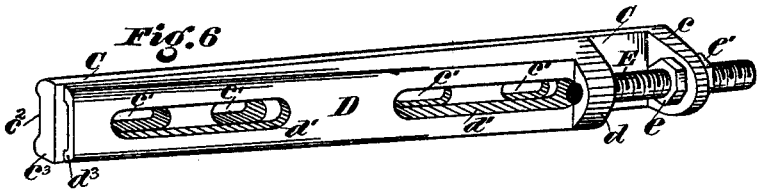

Fig. 6

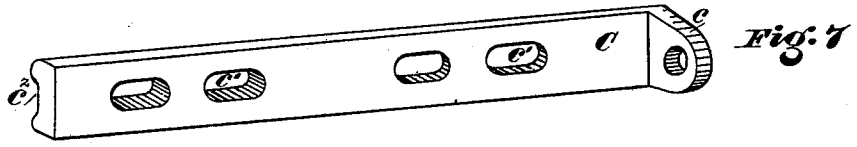

Fig. 7

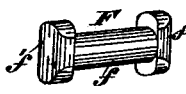

Fig. 8

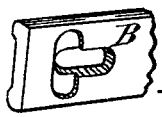

Fig. 9

WITNESSES:

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Jos. B. Connolly

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Orestes Pagan,

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UNITED STATES PATENT OFFICE.

ORESTES PAGAN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN RAILWAY-RAIL JOINTS.

Specification forming part of Letters Patent No. **204,363**, dated May 28, 1878; application filed November 15, 1877.

To all whom it may concern:

Be it known that I, ORESTES PAGAN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fastenings for Railway-Rails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figures 1 and 2 are, respectively, front and rear elevations of my invention. Figs. 3 and 4 are vertical transverse sections; Fig. 5, an end view. Figs. 6 and 7 are perspective views of the tapering fastening-bars, and Fig. 8 a perspective of one of the gibs. Fig. 9 is a detail view, in perspective, of the slotted fish-plate.

The object of my invention is to provide a more secure and effective fastening for the meeting ends of railway-rails than any heretofore known or used, and to dispense with the employment of threaded bolts in such fastening devices.

My invention consists in the peculiar construction and combination of parts hereinafter more fully set forth, having reference, principally, to the provision of two wedge-shaped or tapering bars, which form the fish-plate on one side of the rail, and are rendered relatively adjustable in a longitudinal direction by means of a screw, and to double-headed gibs which pass through slots in said adjustable wedge-shaped bars, and through a flat bar or plate on the other or opposite side of the rails.

Referring to the accompanying drawings, A A designate two railway-rails, the meeting ends of which are shown at *a a*. B represents an ordinary bar or fish-plate, formed, however, with slotted openings *b b* in place of the circular bolt-holes ordinarily provided. C and D are, respectively, two wedge-shaped plates or bars, which taper longitudinally in opposite directions. Said bars are formed with lugs *c* and *d*, through which passes a screw or threaded bolt, E, provided with nuts *e e'*. The plate C has slotted openings c^1 c^1, corresponding in length to the openings *b b*, being each intended for the passage of a separate gib, while the plate D has longer openings *d' d'*, extended sufficiently to permit the passage of two separate gibs through each one of them, and leave an additional space on either side of said gibs.

F F are the gibs, having cylindrical bodies *f f* and double heads *f' f'* of elongated shape, such as will permit their passage through the slots *b* c^1 *d'* when turned in a certain direction, but will prevent their passage through said slots when turned in the contrary direction.

The sides of the plates B and C adjacent to the rails A A should be ribbed near their edges, as shown at b^2 c^2, to avoid too much frictional contact with said rails, and the inner side of the plate D should be constructed in like manner. Countersunk recesses b^1, to receive the heads of the gibs F, may also be formed in the plate B.

The operation is substantially as follows: The plates C and D being first relatively adjusted so that their plain ends will be flush, they and the plate B will be placed on opposite sides of the rails A A, so that the openings *b* c^1 will register with the slotted openings *a'* in said rails. The gibs F are now passed into said openings and turned so that their heads *f' f'* will cross the latter and rest against the plates B and D on either side thereof. The plates B and C are now slid longitudinally in opposite directions, so as to bring the ends of their respective slots on opposite sides of the bodies of the gibs F. The said gibs are now in effect held against side or lateral movement, and are also prevented from turning by reason of their heads entering the countersunk recesses b^1 in the plate B.

It should here be remarked that when the plate C is slid longitudinally, as above set forth, it is in the direction of the end having the lug *c*, the plate B being slid in the opposite direction. The nut *e* is now turned until it meets the lug *c*. Continuing the turning of said nut the plate D will be slid longitudinally on the plate C, bringing the thicker parts of said plates gradually opposite, and thereby producing an expansion against the heads *f' f'* of the gibs F, until said plates, with the plate B and rails A A, become tightly wedged be-

tween the heads of the gibs. The nut *e* is now turned until it meets the lug *c*, when, being duly tightened, it acts as a jam-nut.

To remove the fastening devices, the operation just described is simply reversed.

By using plain gibs, which cost less than threaded bolts and nuts, a considerable saving in the cost of the rail-fastening device is effected, and the inconvenience of having said nuts come constantly loose is avoided.

The expansion of the wedge-plates against the heads of the gibs under the influence of the screw E and nut *e'* renders the fastening very secure, and at the same time allows the expansion and contraction of the rails, owing to changes of temperature, to proceed without affecting the security of the joint. The fastening can also be readily removed when proper occasion arises.

What I claim as my invention is—

1. The wedge-shaped or tapering bars or plates C D, combined with a screw or bolt, E, for causing one of them to slide longitudinally on the other, substantially as described and shown.

2. The combination of the plates B C D, screw or bolt E, with nuts *e e'*, and double-headed gibs F F, the several parts being constructed and forming an improved fastening for railway-rails, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of September, 1877.

ORESTES PAGAN.

Witnesses:

M. DANL. CONNOLLY,

GEO. C. SHELMERDINE.