

(No Model.)

F. L. PITMAN.  
RAILWAY RAIL.

No. 438,444.

Patented Oct. 14, 1890.

Fig. 1.

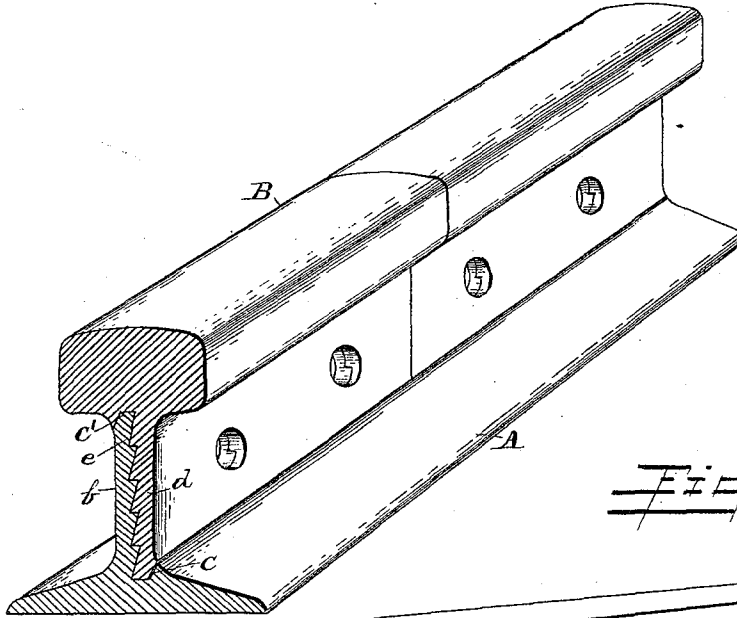


Fig. 5.



Fig. 2.

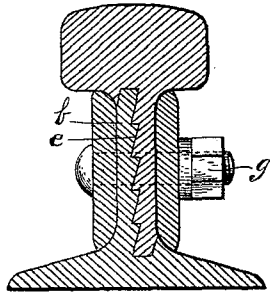


Fig. 3.

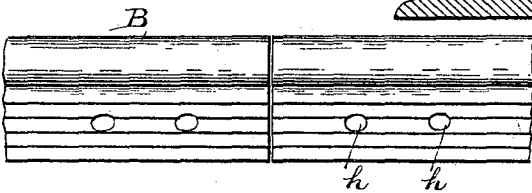
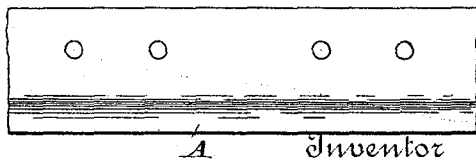


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRED L. PITMAN, OF WILMINGTON, NORTH CAROLINA.

## RAILWAY-RAIL.

SPECIFICATION forming part of Letters Patent No. 438,444, dated October 14, 1890.

Application filed April 28, 1890. Serial No. 349,786. (No model.)

### *To all whom it may concern:*

Be it known that I, FRED L. PITMAN, a citizen of the United States, residing at Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in Railway-Rails, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in railway-rails, and more particularly to what are known as "compound rails."

Heretofore in the use of compound rails, of which many forms have been proposed, various difficulties have been encountered, prominent among which is that of constant pounding of the parts upon each other, whereby they soon become loose, not only allowing them to rattle, but also causing them to wear out very rapidly.

The principal object of my invention is therefore to provide a compound rail which shall be practically solid and continuous, thus eliminating all the evils and expense incident to jointing, and at the same time making all necessary allowance for expansion, the parts of said rail being so interlocked as to entirely prevent movement of either part upon the other, thereby preventing all pounding and rattling.

In practice the head of a rail is always the first to become worn and useless, and it is one of the objects of my invention to provide a rail in which the head can be removed and replaced by a new one without disturbing the lower portion, which thus remains spiked to the cross-ties.

The invention therefore consists in the matters hereinafter described, and pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a compound rail embodying the invention. Fig. 2 is a cross-section of my improved rail. Fig. 3 is a side elevation of one of the sections, showing the formation of bolt-holes used by me to allow for the expansion of the rails. Fig. 4 is a similar view of the opposite section. Fig. 5 is a side view of the tool used in placing the parts of the rail together.

In the drawings, A is the lower portion of chair of the rail, adapted to be secured to the cross-ties by spikes in the ordinary manner. The chair A has an upwardly-extending flange *b*, made integral therewith and forming one-half of the web of the complete rail.

Adjacent to the base of the flange *b*, and extending the whole length of the rail, is a groove *c*, adapted to receive the lower edge of a downwardly-extending flange *d*, similar to *b*, but made integral with the head B of the rail and forming the other half of the web. The upper edge of the flange *b* rests in a groove *c'*, similar to *c*, formed upon the under side of the head B and adjacent to the flange *d*.

It has been found in practice that a stronger and better construction can be obtained by making the notches or grooves *c c'* inclined rather than perfectly vertical, and hence it is necessary to correspondingly incline the lower and upper ends of the flanges *d* and *b*, respectively. It will be seen that by this arrangement and construction the lower and upper parts of the rail will fit closely together, forming when bolted an exceedingly strong and durable rail.

As explained, the edges of the two portions of the rail interfit and make a very firm and durable connection; but in order to still further increase the security of the union of the two parts of which the rail is formed, I form upon the inside surfaces of both portions *b* and *d* continuous oppositely-inclined grooves, which interfit when the parts are in position, as indicated in Figs. 1 and 2, and very greatly increase the surface which supports the top portion of the rail. Obviously, if the inclined surfaces or teeth between the chair and the rail were dispensed with, the parts of the rail would be held together only by whatever friction might exist between the two flanges comprising the web. This in practice has been shown to be insufficient. Hence the parts of the rail soon become loose and worn, whereas by grooving the adjacent surfaces, as shown, a permanent interlocking connection is afforded between the two parts, which entirely counteracts the strong tendency of dismemberment which the head of the rail receives from the rapidly-revolving wheels of a passing train.

One of the difficulties in the maintenance

of track, and also a great source of danger, is what is known as the "creeping" of the rails. With my improved compound rail the joints of the chairs are arranged to occur as near as possible to the middle portions of the top parts of the rails, so that the treads of the rails may be secured at their centers and allowed to expand toward their extremities. In this manner the irregularities produced by low joints and battered rail ends are eliminated, and a railway-track can be constructed which will be uniformly elastic throughout, the advantages of which must be apparent.

Allowance is made for expansion by forming the bolt-holes in the ends of the rails of oval shape, while the corresponding holes in the centers of the chair-sections are round. Conversely the holes in the ends of the chair-sections will be elliptical and the corresponding holes in the centers of the rails circular. In this manner the expansion of both parts of my compound rail is provided for. Connecting-plates, preferably of the form shown in the drawings, are placed against the side of the web of the compound rail at all joints, and also at such intermediate points as may be found in practice to be necessary, and bolted up in the ordinary manner. Any desired form of bolt may be employed.

I am aware that compound rails, *per se*, have heretofore been proposed, and am also aware that it is old to provide the web of a rail with suitable projections meshing with notches on the fish-plates; but no one, so far as is known to me, has ever constructed a compound rail of interfitting sections, said sections being

inclined on their edges to fit correspondingly-inclined grooves formed therein, nor, so far as I am aware, has it ever been proposed to form a compound rail of two interfitting sections provided with inclined intermeshing surfaces forming interlocking steps or teeth and tending to prevent loosening and disengagement.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A compound rail composed of interfitting sections having a series of intermeshing surfaces, said intermeshing surfaces being inclined vertically, but approximately straight horizontally, thereby forming interlocking steps or teeth, substantially as described.

2. A compound rail comprising a lower portion or chair, an inclined longitudinal groove formed therein, an upwardly-extending flange provided with inclined teeth on its inner face, an upper portion consisting of a head having an inclined longitudinal groove on its lower face, a downwardly-extending flange having teeth meshing with the flange on the lower portion, both of said flanges being inclined on their edges to fit the longitudinal grooves in the opposing section, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRED L. PITMAN.

Witnesses:

H. E. MCCOY,  
GEO. M. BROCKMANN.