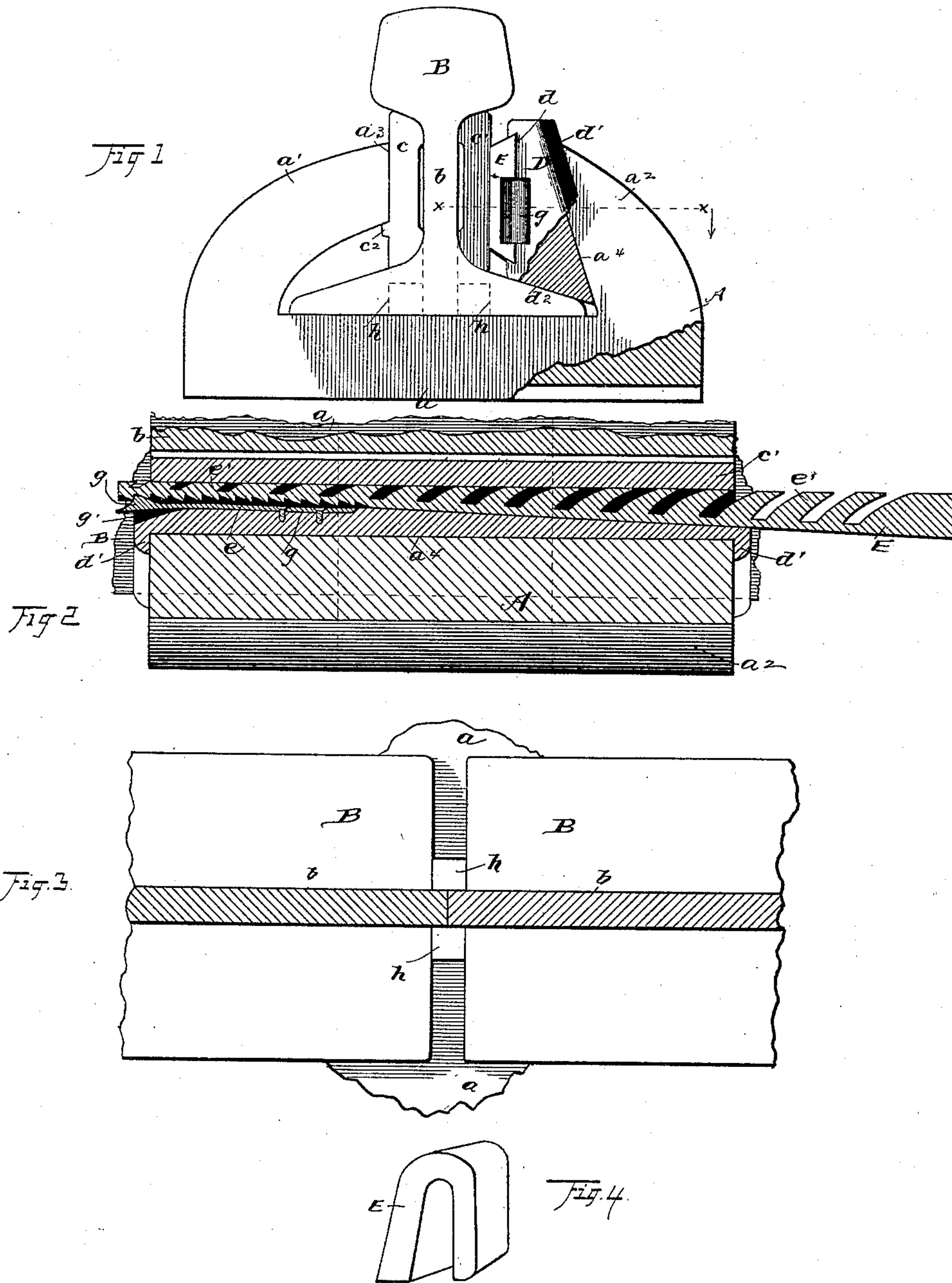


(No Model.)

O. L. OLDS.  
JOINT FOR RAILWAY RAILS.

No. 405,675.

Patented June 18, 1889.



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# UNITED STATES PATENT OFFICE.

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## JOINT FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 405,675, dated June 18, 1889.

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*To all whom it may concern:*

Be it known that I, ORCELIUS L. OLDS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Joints for Railway-Rails; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in fish-joints for railway-rails.

The purpose of my invention is to form a firm and reliable joint for railway-rails which does not employ bolts and nuts or other means passing through the rails for fastening the same, and is adaptable to rails in common use without any material change in their construction.

To this end my invention consists in a pair of fish-plates, a chair, a wedge, a gib, and pawl, all constructed and arranged substantially as shown and described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is an end elevation of a rail and of the joint supporting and locking mechanism. Fig. 2 is a longitudinal section on line  $xx$ , Fig. 1. Fig. 3 shows ends of rails as they meet and make connection on the chair, the lugs on the chair coming on either side of the web and the head of the rails removed to uncover these features. Most of the chair also is broken away. Fig. 4 is a perspective view of a modified form of wedge. Other forms might be suggested, but these show the principle.

The joint here shown and described may be termed a "suspension-joint," and is intended to be used between the cross-ties instead of upon them, as is most common; but of course it may be placed on the cross-ties, if preferred, though this is not deemed the better way. The entire construction, therefore, should be made with reference to the preferred arrangement, and the several parts be formed with sufficient weight and strength to withstand the strain independent of any base-support.

A represents the form of chair used in my improved joint. This chair has a base  $a$  and

two sides  $a'$   $a^2$ , extending inward and upward from the base, with their faces  $a^3$   $a^4$  longitudinally opposite to the center of the web  $b$  of the rail B. The space within the base of the chair inside of the side portions is somewhat wider than the flanged base of the rail, while the space between the faces  $a^3$   $a^4$  of the sides is such that the chair can be readily placed in position on the rail for locking and be as readily removed therefrom. In use the only direct point of contact between the chair and the rail is on the base. The fish-bars  $c$   $c'$ , which are duplicates of one another, perform the usual function in locking and strengthening the rail-joint, and the bar C is provided with a rib  $c^2$ , which engages the lower edge of the side  $a'$  of the chair and holds the chair up to rails. On the side  $a'$  of the chair A the face  $a^3$  extends entirely across the said side from the top to the base  $a$ . This face is inclined from the bottom to the top inward toward the rail, and is plain and smooth throughout its length.

D is the gib, which has one side inclined to adapt it to the inclined face  $a^4$  of the chair, and the other face set vertically parallel with the face of the fish-bar. This other face has a longitudinal groove  $d$ , of equal width throughout, preferably dovetailed, though the edges of the groove may be right-angled, and at the ends of the gib are lips  $d'$ , which lock just by the ends of the chair and prevent its longitudinal displacement. The inclined side  $a^4$  of course will prevent the gib from working upward and out, and its lower edge  $d^2$  is inclined to adapt it to the incline of the base of the rail upon which it rests. Longitudinally the gib D is wedge-shaped, as shown in Fig. 2; but this does not affect the depth of the groove  $d$ , which is the same at all points.

E is the wedge for locking all the parts together. This wedge is tapered longitudinally, and has its edges adapted to fit the dovetailed groove  $d$  of the gib. It is of uniform width from end to end and is inserted between the gib and the fish-bar. The wedge and gib are set reversely to each other, as seen in Fig. 2, and the taper of both being very gradual and easy I obtain locking mechanism which is believed to be as firm and effective as can be made.



To lock the wedge in any given position, I set a spring-pawl *g* in a recess *g'* in the gib and provide the wedge with ratchet-teeth *e*, arranged to be engaged by the pawl and to hold the wedge securely in place. The pawl is to be made of heavy steel, so that it cannot be easily sprung open.

In case the form of joint hereinbefore described is found too rigid and has not elasticity to compensate for severe strain without breaking at some point, the desired relief may be obtained by employing a spring-wedge constructed according to either of the figures shown, or to some equivalent figure. Two forms of such a wedge are here shown, one in Fig. 2, in which the back of the wedge is formed with what may be termed a "series of inclined spring-ribs *e'*," upon which its spring depends, and extending transversely from edge to edge of the wedge and having graduated depth, according to the taper of the wedge. Another form of spring-wedge is shown in Fig. 3, where the wedge is made **U** shape in cross-section. Still other forms might be suggested, but these will suffice to illustrate this feature of the invention.

In Fig. 3 I show lugs *h* on the bottom of the chair, against which the ends of the rails abut to prevent creeping.

It will be seen by the foregoing construction that the parts are bound firmly together and cannot loosen or work out in any direc-

tion. The rail and chair are kept close along the base and the fish-bars rigidly in their seats.

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

1. In a rail-joint, a chair having a laterally-inclined face opposite the web of the rail, in combination with a longitudinally-tapered gib adapted to said inclined face on one side and its opposite face parallel in vertical lines to the web of the rail with a wedge and fish-bars, substantially as set forth.

2. In a rail-joint, a gib wedge-shaped longitudinally and having a longitudinal groove on its inner side and its outer side inclined outwardly from its top to its bottom edge, in combination with a chair correspondingly inclined to the gib, and a wedge and fish-bar, substantially as set forth.

3. In a rail-joint, a chair with one vertical and one inclined side, and a rail, in combination with a gib having an inclined side resting against the side of the chair and its lower edge bearing on the rail, the said gib tapered and grooved longitudinally, and a wedge set in said groove and bearing against the fish-bar, substantially as set forth.

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