G. C. VAIL.

Railway-Rail Joint Fastening.

No. 162,589. Patented April 27, 1875.

Fig. 1.

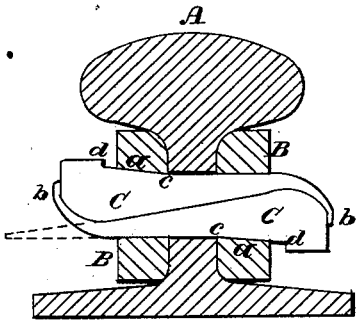


Fig. 2.

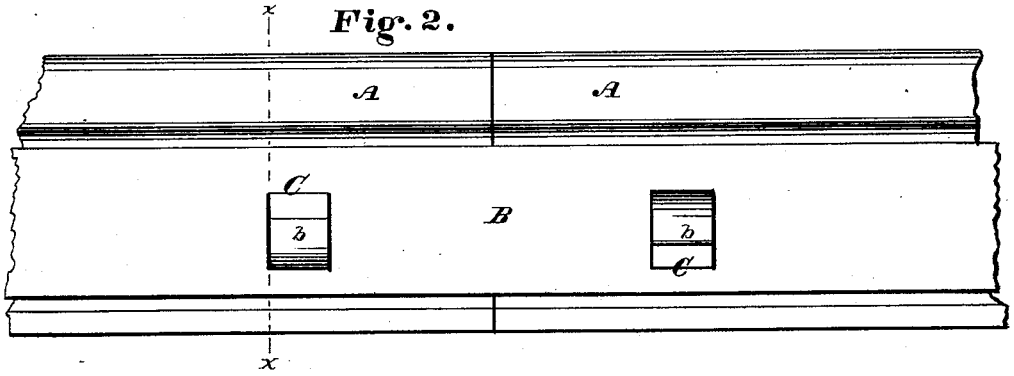
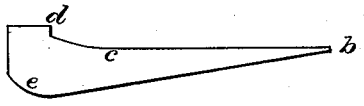


Fig. 3.



Attest:

P. Connetts,

M. A. Gordon

Inventor:

George C Vail

Per Henry Connetts Jr.

Atty

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

GEORGE C. VAIL, OF MADISON, INDIANA.

IMPROVEMENT IN RAILWAY-RAIL-JOINT FASTENINGS.

Specification forming part of Letters Patent No. **162,589**, dated April 27, 1875; application filed October 13, 1874.

To all whom it may concern:

Be it known that I, GEORGE C. VAIL, of Madison, in the county of Jefferson and State of Indiana, have invented certain Improvements in Railway-Rail Fastenings, of which the following is a specification:

This invention relates to that class of fastenings requiring a fish-plate on each side of the rails at their junction, usually secured in place by means of bolts passing through both plates and the web of the rail. Bolts are objectionable for this purpose, by reason of the continuous jar upon the rails loosening the nuts.

In the drawings, Figure 1 is a vertical cross-section of my invention, in the plane of the line *x x* in Fig. 2. Fig. 2 is a side view of my invention. Fig. 3 is a detached view, showing one of the wedges.

Like letters of reference designate corresponding parts in all of the figures.

Let A A represent adjoining ends of two ordinary T-rails, and B B fish-plates of the ordinary kind, made to fit snugly against the web of the rails, as shown in Fig. 1. These plates are perforated with rectangular holes, at the usual distance apart for bolts, and the webs of the rails are correspondingly perforated. One side of the perforations in the fish-plates—either the upper or lower side—is flared or beveled, as at *a a*, the holes being largest on the outside. C C are wedges, preferably of wrought-iron, of a peculiar form. (See Fig. 3.) Two wedges are used together to form the fastening, but all are, or may be, precisely alike.

When the beveled backs of two wedges are placed together, as in Fig. 1, the opposite faces are parallel from the points *b b* to about the points *c c*. From the point *c* the wedge is beveled or gradually thickened up to the shoulder *d* of the head. The back of the head at *e* is rounded.

It will be seen that the beveled face of the wedge, from *c* to *d*, corresponds with the beveled face *a* of the hole in the fish-plate.

The manner of making the fastening is as follows: The plates B B are placed in position, and a wedge, C, inserted from each side, back to back, and one above the other. They are then driven home, and the points *b b* clinched or bent around the rounded part *e* of the head.

The bevels from *c* to *d* on the upper and lower faces of the wedges, acting against the corresponding beveled faces *a a* of the perforations in the plates B B, when the wedges are driven from opposite sides, force the plates snugly against the web of the rail, and bind all firmly together when the points of the wedges are clinched.

The perforations in both the web of the rail and the fish-plates should be made somewhat wider, longitudinally, than the wedges, so as to admit of expansion in the said rail and plates. It is for this reason that I place the wedges one above the other, instead of sidewise, as it is necessary to throw all of the strain in wedging transversely, there being little or no expansion in that direction.

The holes in the plates and web may be circular or elliptical, and the faces of the wedges rounded to fit the same; but they are liable to get turned around, so as to throw the strain longitudinally, and interfere with expansion; therefore they are objectionable.

To remove the wedges, it is only necessary to straighten out the clinched points of the same, and apply a claw-bar to the shoulder *d* of one of them, and they are easily loosened.

I am aware that a gib and key of the usual kind have been used for this purpose, the key being driven home and the point clinched over the end of the gib; but this device is objectionable, for the reason that the width of the gib makes it necessary for them to lie sidewise, thus throwing the strain, in driving the key, wholly in a longitudinal direction. The driving being all from one side, and no provision being made for forcing all the parts together when fastening, some extraneous means must be adopted for clamping the parts.

Having thus described my invention, I do not, in view of the present state of the art,

claim, broadly, the use of a beveled key or wedge for this purpose, nor clinching the same at the ends; but

What I claim as new, and desire to secure by Letters Patent, is—

The improved fastening for railway-rail joints, consisting of the fish-plates B B, perforated with rectangular holes, having their upper or lower faces beveled, as at *a a*, in combination with the wedges C C, beveled or tapered, as described and shown, and driven in back to back, one above the other, as shown, the points *b b* being bent or clinched over the heads, all substantially as specified.

GEORGE C. VAIL.

Witnesses:

J. C. ROBERTS,

HENRY CONNELL, Jr.