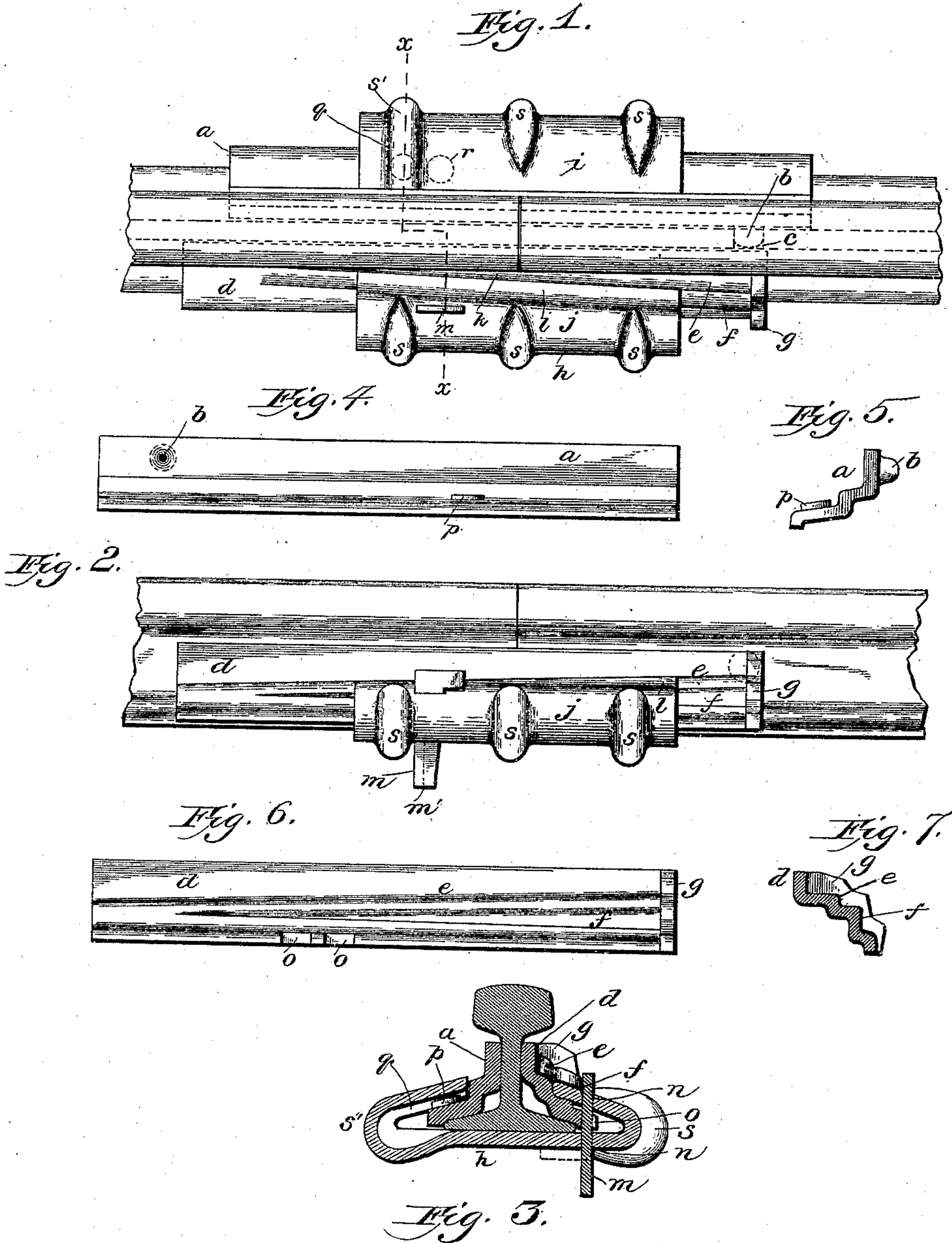


(No Model.)

C. T. SCHOEN.
PRESSED STEEL RAIL JOINT.

No. 446,017.

Patented Feb. 10, 1891.



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CHARLES T. SCHOEN, OF PHILADELPHIA, PENNSYLVANIA.

PRESSED-STEEL RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 446,017, dated February 10, 1891.

Application filed September 20, 1890. Serial No. 365,640. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. SCHOEN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Pressed-Steel Rail-Joints, of which the following is a full, clear, and exact description.

The object of this invention is to provide a railroad-rail joint from parts made of wrought metal or steel by preference shaped by pressing or striking up in dies; and it is designed by this invention to utilize the well-known properties of low-carbon steel and merchant shapes, such as plates of such steel, and thereby to obtain a joint of great strength and durability and at a comparatively low cost.

The invention comprises a plane angular fish-plate for one side and a wedge-shaped angular fish-plate for the other side and a shoe having two bevels for embracing and fitting these fish-plates and the base of the rails, and firmly binding the fish-plates in place between the web and base of the rail, as I will proceed now more particularly to set forth, and finally point out in the claims.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a plan view of the parts assembled about the meeting ends of two rails. Fig. 2 is a side elevation thereof. Fig. 3 is a transverse section taken in the plane of line *xx*, Fig. 1. Fig. 4 is a side elevation, and Fig. 5 an end view, of the plane fish-plate. Fig. 6 is a side elevation, and Fig. 7 is a cross-section taken in the plane of line *yy* of Fig. 6, of the wedge-shaped fish-plate.

a is the plane angular fish-plate, made substantially in the form shown in Figs. 3, 4, and 5, so as to abut against the web and base of the rail when in position of use. This fish-plate is provided with a lug or dowel *b*, projecting laterally from its vertical portion and adapted to enter a hole *c* in the web of the rail, in order to prevent creeping or endwise movement. The wedge-shaped fish-plate *d* is also made angular in cross-section to fit the web and base of the rail. The terminal edges of this wedge-shaped fish-plate are parallel, and the wedges or wedging portions are made

intermediate of these edges and consist of the horizontal wedge-like portion *e* and the vertical wedge portion *f*. The wedge-shaped fish-plate is provided with an upturned end *g* to afford means for driving the wedge home without battering its end, and also for withdrawing it when desired.

The shoe *h* is made in loop shape, as shown, and has one overlapping side *i*, made with a straight edge, while the opposite overlapping side *j* is made with a beveled edge *k*, said beveled edge co-operating with the horizontal wedge portion *e*. The said shoe also has its beveled edge *k* elevated, as indicated by the shaded portion *l*, to form a bevel to co-operate with the vertical wedge *f*. By this construction the shoe binds against the wedge-shaped fish-plate to force it against the web of the rail, and thus draw the plane fish-plate against said web, and also to bear down upon that portion of the wedge-shaped plate which engages the base of the rail. When the parts are assembled, a key *m* is passed through openings *n n* in the shoe and through a notch *o* in the edge of the wedge-shaped fish-plate to prevent disarrangement of the parts. This key *m* may have its end turned under, as indicated by dotted lines in Fig. 3, in order to lock the key in place, or said key may be split, as indicated by the dotted line *m'* in Fig. 2, and one member turned one way and the other the other way, in order more securely to lock the said key in position.

As a further security for the plane fish-plate, it may be provided with a lug *p* on its upper surface, which engages with a groove *q* in the shoe; or it may engage with the hole *r* in such shoe, as shown in dotted lines in Fig. 1.

The shoe is provided with projections or ribs *s* on its bends, in order to stiffen and strengthen it, and one of these projections or ribs, as *s'*, Fig. 1, may be extended over to the inner edge of the shoe, in order to form the groove to receive the lug *p*.

The several parts composing the joint hereinbefore described may be quickly and economically manufactured by striking up the same from wrought metal—such as steel plate—by means of dies or by rolling or forging or other well-known mechanical processes, and I wish it to be distinctly understood that I

do not limit my invention to any process or method of producing the fish-plates and the shoe.

My rail-joint requires no bolts for connecting the parts. It will be observed that the several parts constituting my rail-joint are interlocking, and thus there is considerable saving of labor and time in assembling the joint, while the strength and durability of the joint are quite equal to bolted joints of ordinary construction.

What I claim is—

1. A rail-joint composed of a plane angular fish-plate and a second angular fish-plate having a horizontal wedge portion *e* and a vertical wedge portion *f*, the said fish-plates being adapted to embrace the web and base of the rails on opposite sides, and a shoe made as a loop, having one side straight to engage the plane fish-plate and the other side provided with two bevels to engage the wedge portions of the other fish-plate, the said several parts being struck up or pressed from flat steel plate, substantially as described.

2. A plane angular fish-plate provided with a lug, combined with a complementary fish-plate and a shoe having an opening or cavity therein to engage the lug on the fish-plate, substantially as and for the purpose described.

3. A shoe for rail-joints, made as a loop having one side straight and the other side constructed with two bevels, and provided with projecting ribs or beads on its bends for stiffening and strengthening the same, the whole struck up or pressed from plate steel or like wrought metal, substantially as set forth.

4. A rail-joint composed of a wedge-like fish-plate having a horizontal wedge portion *e* and a vertical wedge portion *f*, combined with a complementary fish-plate and a shoe fitted to the two and struck up or pressed from steel plate, substantially as and for the purpose described.

5. A wedge-like fish-plate having a horizontal wedge portion *e*, a vertical wedge portion *f*, and the upturned end *g*, struck up in dies from plate metal, preferably steel, substantially as and for the purpose described.

6. A boltless rail-joint composed of a fish-plate having a projection to engage a hole in the web of the rail and another projection to engage the shoe, a wedge-shaped fish-plate, and a shoe to engage the said fish-plates and bind them upon the rails, substantially as described.

7. A rail-joint composed of a plane fish-plate having a lug or dowel to engage a hole or lug in the web of the rail and a second lug or dowel to engage an opening or recess in the shoe, a wedge-shaped fish-plate, a shoe to engage the two fish-plates, a pin passed through the shoe, and a notch in the edge of the wedge-shaped fish-plate, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 18th day of September, A. D. 1890.

CHARLES T. SCHOEN.

Witnesses:

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EDWARD P. HIPPLE.