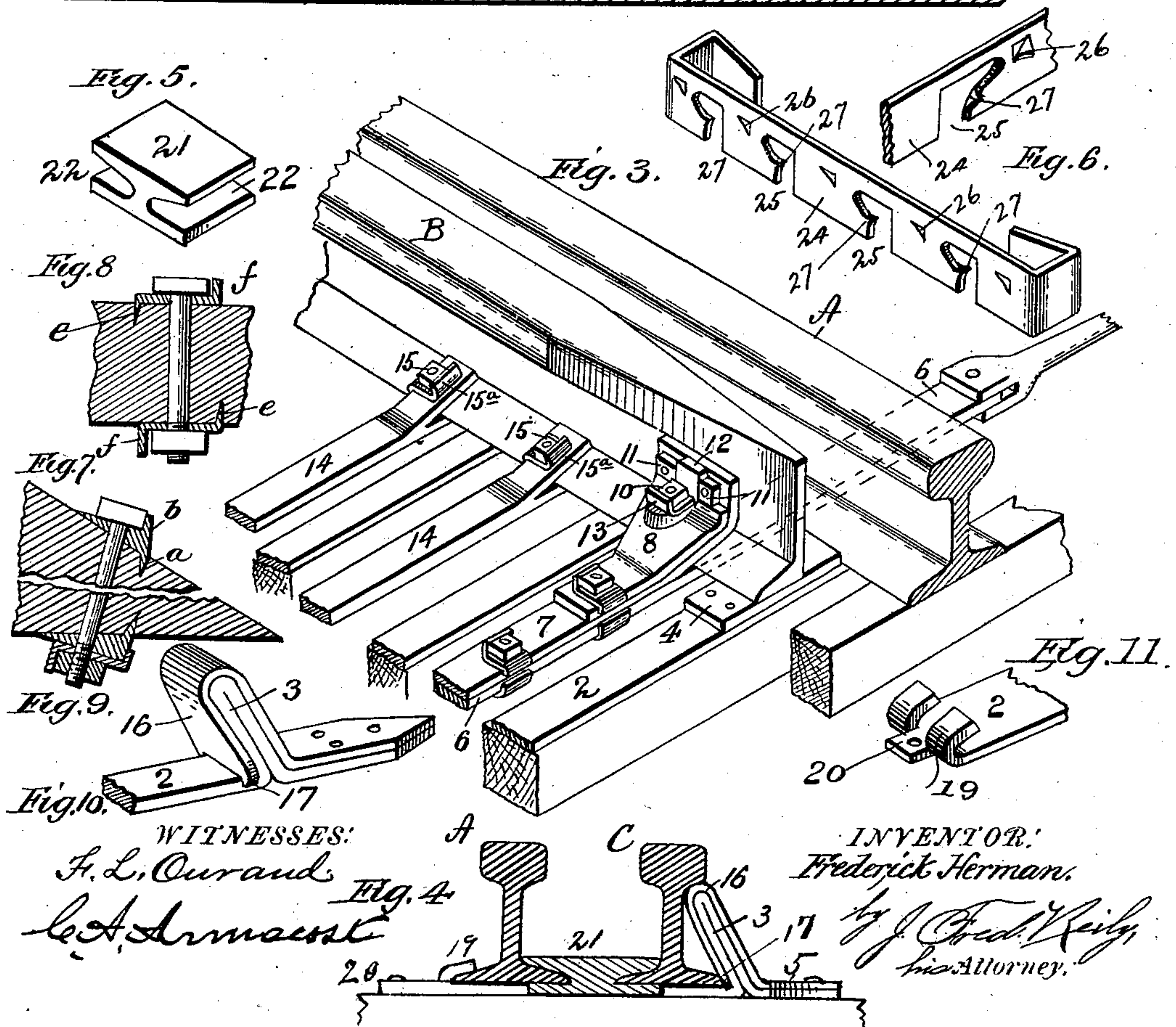
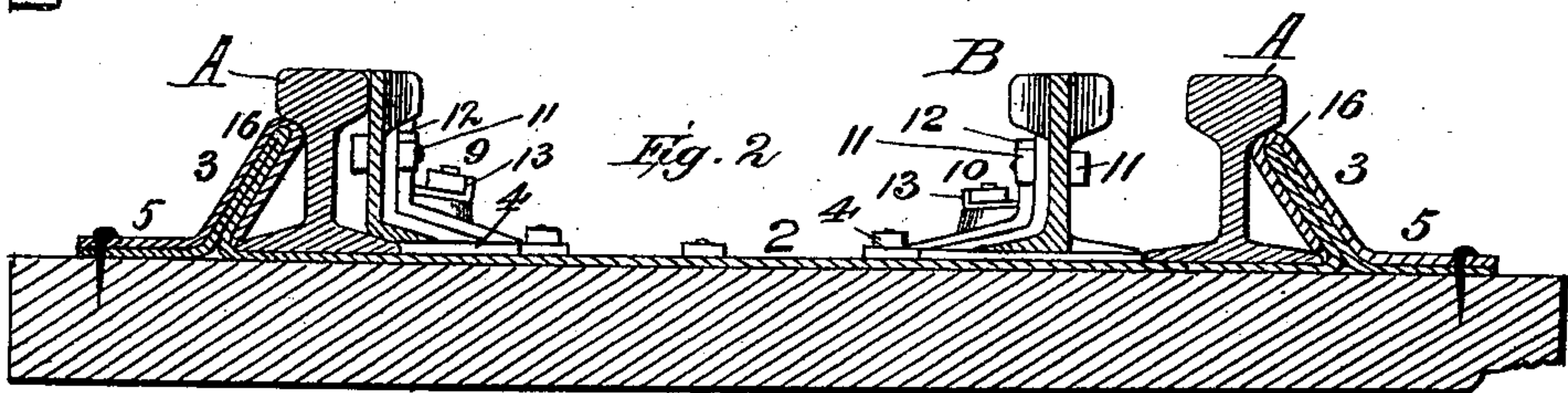
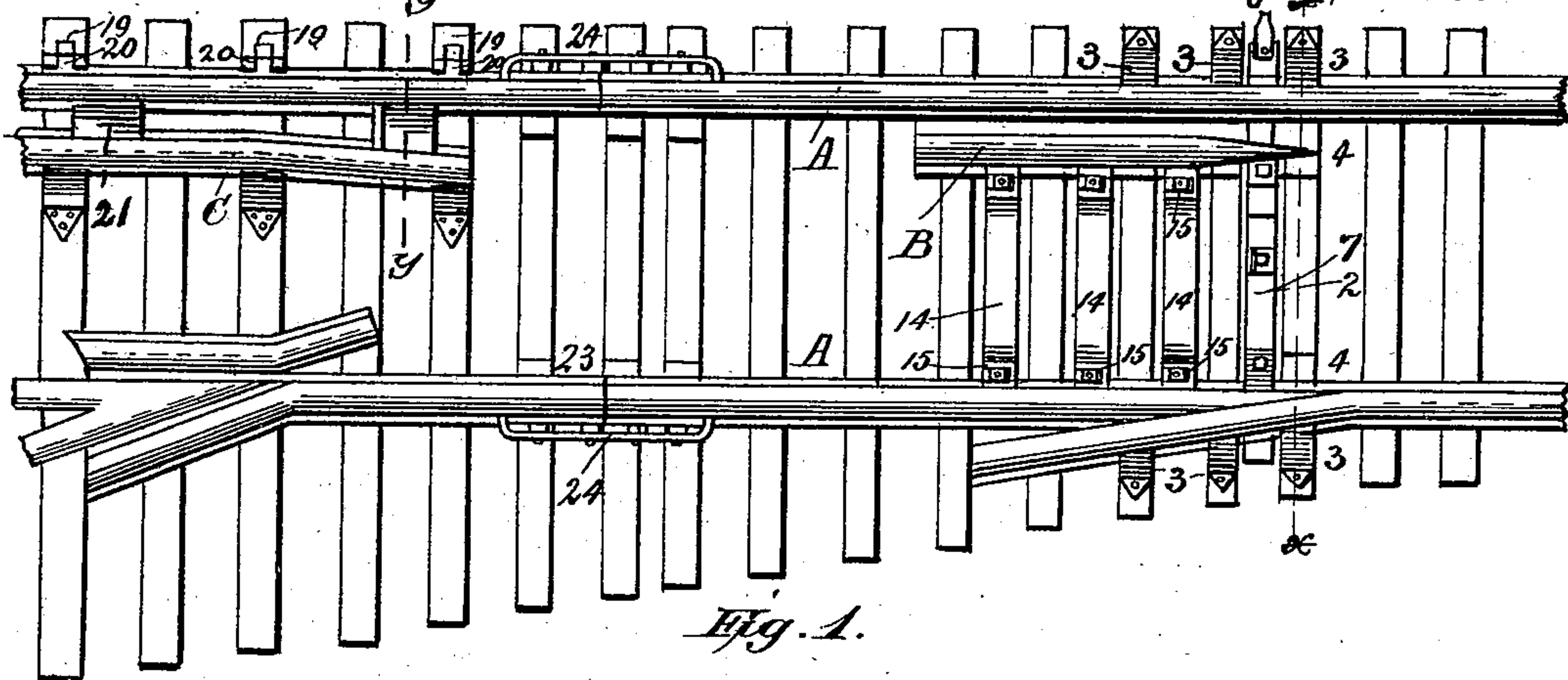


Patented July 7, 1896.



UNITED STATES PATENT OFFICE.

FREDERICK HERMAN, OF MARTINSVILLE, MISSISSIPPI.

SWITCH.

SPECIFICATION forming part of Letters Patent No. 563,376, dated July 7, 1896.

Application filed June 13, 1894. Serial No. 514,466. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK HERMAN, a citizen of the United States, residing at Martinsville, in the county of Copiah and State of Mississippi, have invented certain new and useful Improvements in Switches; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to switches for railways and especially to switch-point fastenings and braces, and has for its object to provide a combined gage plate and brace of standard size to insure correct positioning of the rails, a simple means for tightening and compensating for wear, an efficient contrivance for preventing the guard-rails tipping and drawing the spikes or fastenings on the edge of the foot opposing the rail, and devices to secure the burs and bolts from loosening under the various movements incident to traffic over the rails and the shifting of the switches.

The improvement consists of the novel features and the peculiar construction and combination of the parts, which hereinafter will be more fully described and claimed.

In the drawings, Figure 1 is a top plan view of a switch, showing the application of the invention. Fig. 2 is a cross-section on the line xx of Fig. 1, showing the gage-plate and shoulder-brace in side elevation. Fig. 3 is a detail view of the switch-operating rod, showing the bracing connections. Fig. 4 is a detail view of the gage-plate and brace for securing the guard and main rails and showing a cap-plate provided on the shoulder-brace. Fig. 5 is a detail view of the filling-block notched in its opposite edges to receive the edge of the rail-bases. Fig. 6 is a detail view of the side bur-holder. Fig. 7 is a detail view of a cast-metal holder for the head of a bolt. Fig. 8 is a detail view of a holder for a nut without a washer. Fig. 9 is a detail view of a holder for a nut having an interposed washer. Fig. 10 is a detail view of the outer end of a cross-tie, showing the brace

provided with a cap. Fig. 11 is a detail view of the end of the plate having the recurved and apertured ear.

Similar letters and numerals of reference refer to corresponding parts in the several views.

Referring to the drawings, the letter A indicates the main rails, B the switch-points, and C the guard-rail.

The plate 2 is provided at its ends with braces 3, which incline inwardly to come beneath the head of the rail and brace the latter, and outer extensions 5 to rest upon the tie and be spiked thereto. The braces 3 form an integral part of the plate and are folds provided in the said plate. Wear-plates 4 are secured on the plates 2 to provide a stop for the inner edge of the base of the fixed track-rails and a support for the switch-rails B to slide upon.

The movable ends of the switch-rails are connected by a transverse rod 6, which is attached to the switch-stand or operating-lever (not shown) in the usual manner. A plate is attached to the rod 6 and has its ends bent up and lapped against the sides of the web of the switch-rails, to which they are secured by bolts. Reinforce plates or stays 8, conforming to the bent ends of the plate 7, are attached to the plate 7 and rod 6 by bolts 9 and 10, the latter passing through the foot of the rail. The upper ends of the plates 8 come beneath the lower edges of the nuts on the bolts 11 and have a projecting portion 12 to come between the said nuts and secure them from possible movement. A plate 13 is mounted on the bolt 10 and has one edge bent up along the edge of the nut thereof to hold the latter in place. The opposite end of the plate 13 touches the projection 12, by which it is held from turning on the bolt. The brace-rods 14, between the switch-rails, have their ends cleft and, embracing the bases of the rails, are secured thereto by bolts 15, the nuts of the latter being held in place by lock-plates 15^a.

In some instances it is required to tighten the rails or adjust them relative to the shoulder-braces 3 to compensate for wear or other purpose. To effect this adjustment, cap-plates 16 are provided to fit over the braces 3 and have their outer end portions extend-

ing over the end portions 5 of the plate 2 and secured to the cross-tie by the same spikes which fasten the plates 2 in position. Projections 17 at the inner end of the cap-plate 5 embrace the edges of the plate 2 and retain the cap-plate in proper position. (See Fig. 10.)

In some cases the plate 2 is especially constructed with reference to main and switch rails, in which case the plate 2 is provided at 10 one end only with a brace 3 and at the opposite end with recurved ear portions 19, between which an apertured ear 20 is provided to receive the spike or fastening by means of which the plate is secured to the tie. The 15 recurved ears 19 embrace the foot of the rail and retain the latter in place.

Filling-blocks 21 are located between the main and the guard rails and have notches 22 in their opposite edges to receive the feet 20 or base portions of the said rails. These blocks prevent toppling over of the guard-rails and the drawing out of the inner fastenings.

The rail-joint 23 may be effected in any desired manner by the usual fish-plate and series of bolts passing through the rails and fish-plates. The bur-holder 24 for the series of nuts is a plate having its ends bent and provided in one edge with notches 25, corresponding in position and number with the 30 bolts to receive the latter, and with projecting portions 26 to engage with the corners of the burs. One edge of the notch is curved to conform to the bolt. The other edge is 35 deflected to provide a spring locking-tongue 27 to engage with the edge of the bur and prevent accidental turning thereof.

The holders for the fastening-bolts are variously formed. Fig. 7 shows a form for the 40 head of a bolt and comprises a penetrating-point *a* to enter the base and an edge *b* to extend along the edge of the bolt-head. In Fig. 8 the holder has a point *e* and a portion *f*, which, after the bur is screwed home, is bent 45 up by a chisel or chisel-edged instrument against the edge of the bur and secures the latter from turning back. In Fig. 9 the holder is a plate and adapted to have its ends bent in opposite directions against the 50 edge of the bur and the edge of the washer, respectively, substantially as shown.

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

1. The combination with the switch-rails, 55 and an operating-rod, of a plate 7 secured to the rod and having its end bent up and fastened to the web of the switch-rail, and a reinforce-plate secured to the plate 7 by the same fastenings which secure the said plate 60 7 to the rod, and having its end bent and secured to the switch-rail, substantially as specified.

2. The combination with the switch-rails, 65 and a rod, of a plate attached to the rod and having its ends bent up and bolted to the web portions of the switch-rails, and reinforce or stay plates secured to the said plate and rod, and having projecting portions to extend into 70 the space between and engage with the edges of the burs which secure the plate to the said webs of the rails, substantially as described.

3. The independent filling-block 21, formed with the deep recesses 22 in its opposite sides to receive the feet or base portions of two 75 rails, and adapted to be used independently as required, substantially as described.

4. The combination with the guard and main rails, of the plate 2 formed at one end with the inclined brace 3 extending up to the 80 head of the rail and formed at its other end with the outwardly-extending centrally-apertured ear 20 adapted to receive a securing-spike, and the recurved ear portions 19, 19, 85 curving up on each side of said central apertured ear to engage with the foot of the rail, substantially as set forth.

5. The combination with a gage-plate having shoulder-braces, of a cap-plate to be fitted to the brace, substantially as described. 90

6. The combination with a gage-plate having shoulder-braces, of a cap-plate fitted to the brace and having projections to embrace the edges of the gage-plate, substantially as and 95 for the purpose described.

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

FREDERICK HERMAN.

Witnesses:

H. BAGE,
J. C. WOODS.