

D. E. BROCKETT.

Improvement in Railway-Switches.

No. 130,356.

Patented Aug. 13, 1872.

Fig 1.

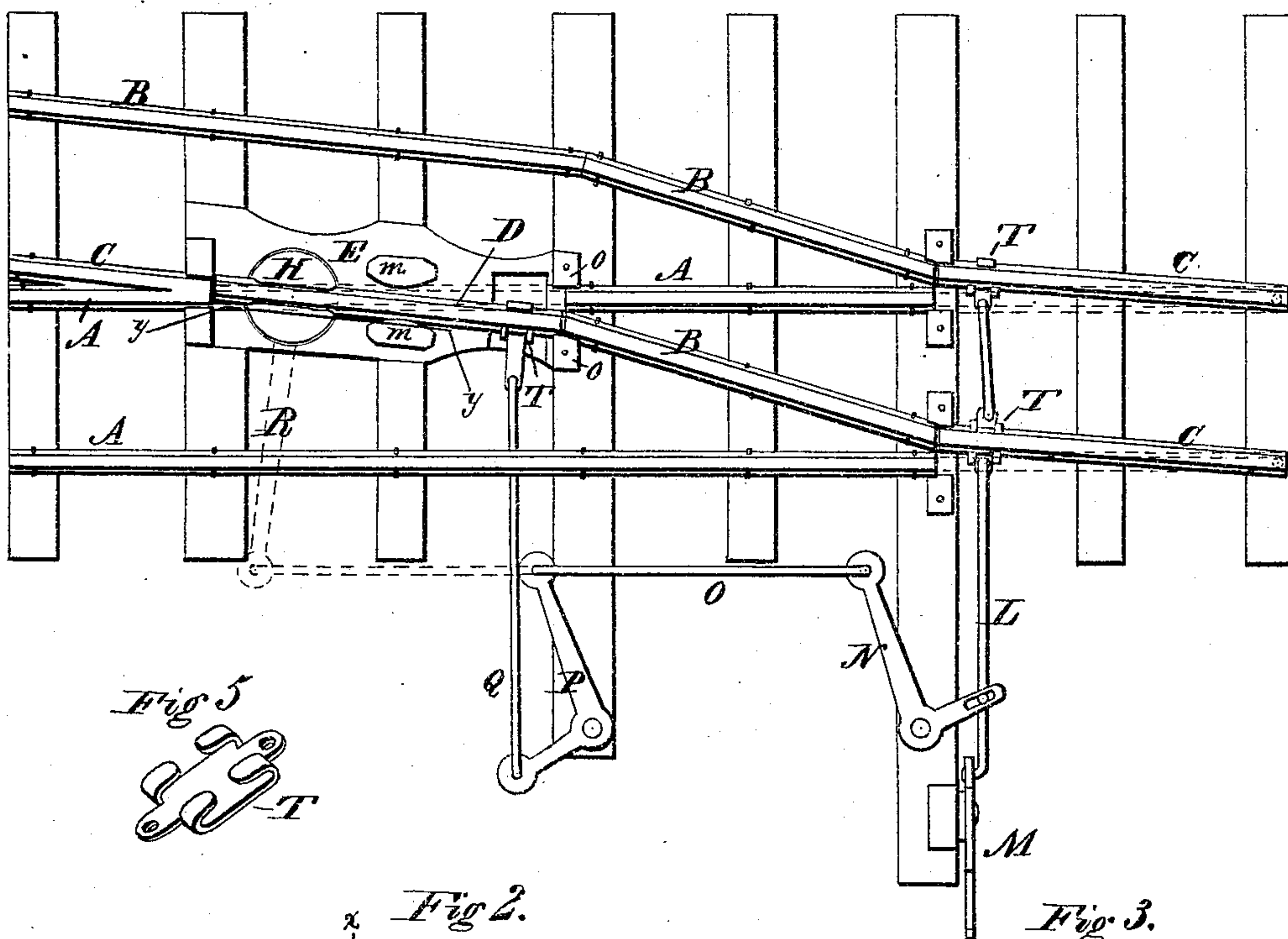


Fig 5.

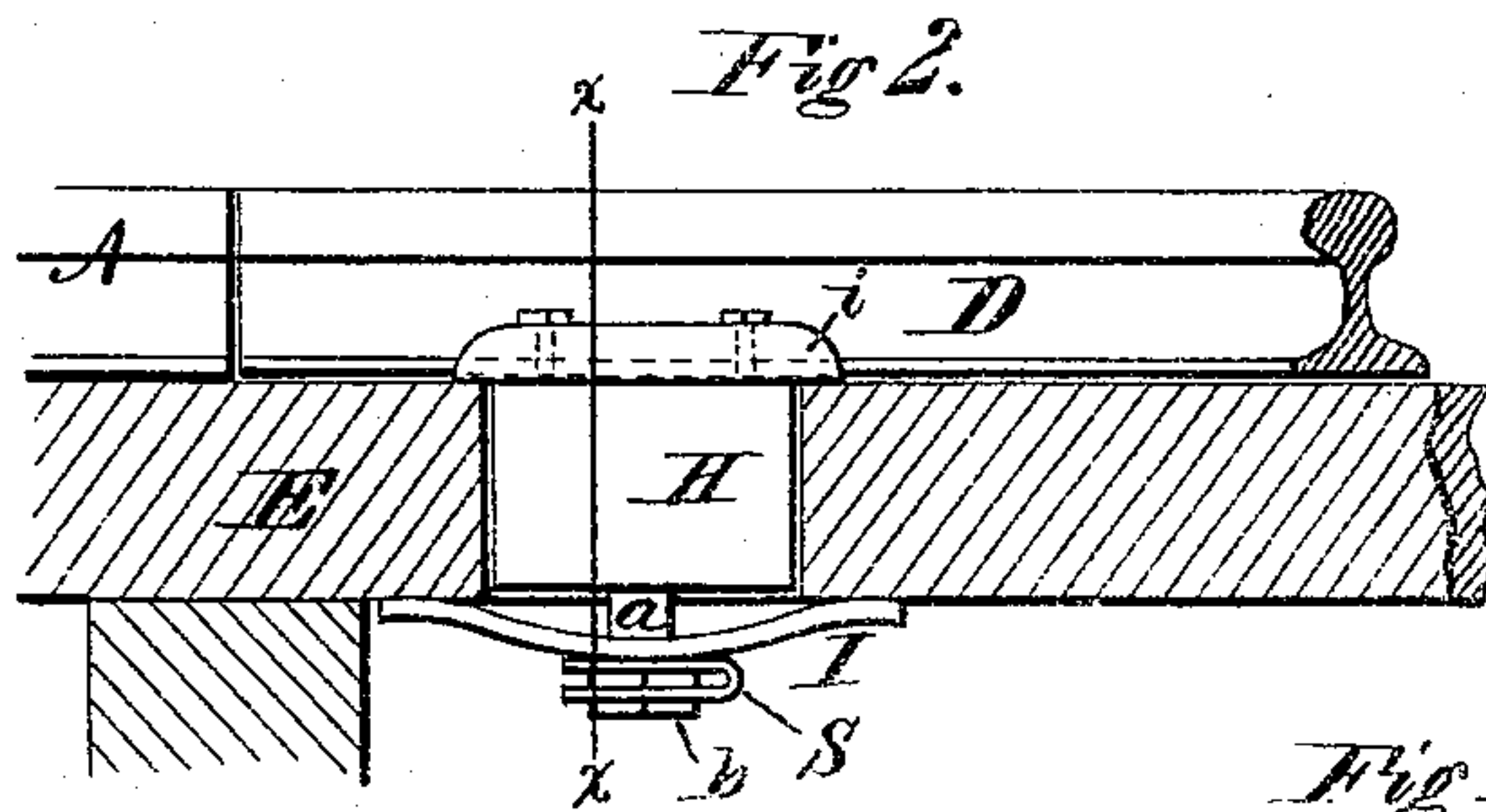


Fig 2.

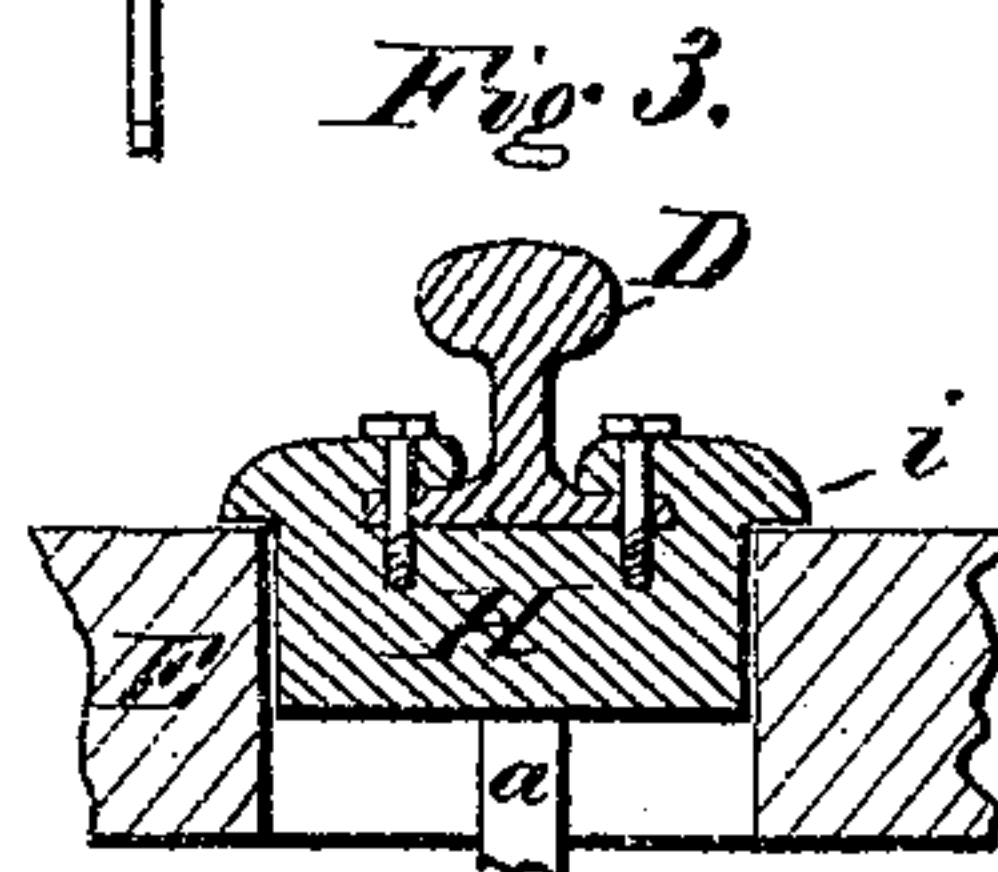


Fig 3.

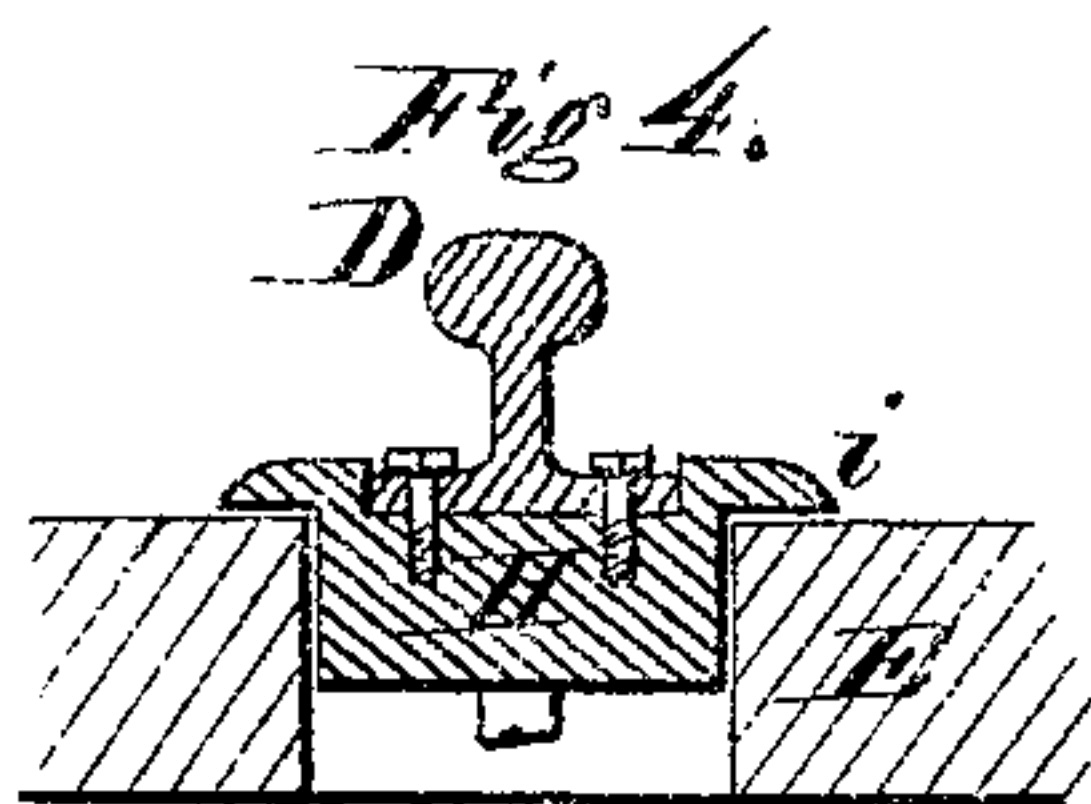


Fig 4.

Witnesses.

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# UNITED STATES PATENT OFFICE.

DAVID E. BROCKETT, OF WHEELING, WEST VIRGINIA.

## IMPROVEMENT IN RAILWAY SWITCHES.

Specification forming part of Letters Patent No. 130,356, dated August 13, 1872.

### SPECIFICATION.

*To all whom it may concern:*

Be it known that I, DAVID E. BROCKETT, of Wheeling, in the county of Ohio and State of West Virginia, have invented certain Improvements in Railroad Switches, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to that class of railroad switches in which a pivoted vibrating tongue is used instead of the usual frog; and the invention consists in a bed-plate and pivot of novel construction for holding and supporting the vibrating tongue; in a novel arrangement of devices for operating the vibrating tongue and the switch-rails; and in a novel wrought-iron clamp for securing the connecting-rods to the switch-rails, all as hereinafter explained.

Figure 1 is a top-plan view of my improved switch; Fig. 2, a longitudinal vertical section on the line *y y* of Fig. 1; Fig. 3, a vertical cross-section on the line *x x* of Fig. 2; Fig. 4, a cross-section of the bed-plate with a modified form of pivot; and Fig. 5, a perspective view of one of the clamps.

A A represent the stationary track or line rails; B B, the side or branch rails diverging from the main track; C C, the shifting switch-rails, arranged so that they may have their ends set in line with the main or the branch rails, as required; D, the vibrating tongue or rail, arranged, in place of the usual frog, at the point where the inside branch rail crosses the rail of the main track, so that by swinging it on its pivot it may be caused to form a continuation of the main or of the branch track, as required. In order to support the tongue in position I provide a solid cast-iron bed-plate, E, of a suitable size and shape, and mount it permanently under the track, as shown. In one end of the bed-plate I seat a large round pivot, H, having a rim or flange, *i*, formed around its upper end so as to bear upon the bed, for the double purpose of supporting the pivot and of preventing rain, snow, or dirt from entering around it. To the top of the pivot I secure the end of the tongue D, so that it can swing laterally, as required, but cannot turn over sidewise. When the pivot is made of wrought-iron I secure the tongue to it by providing it with a dovetail or  $\perp$ -shaped groove, and drive the tongue endwise therein,

as shown in Fig. 3, and fasten it by bolts so that it cannot move endwise. When, however, the pivot is made of cast-iron, I provide it with a plain groove or recess and bolt the tongue down therein, as shown in Fig. 4. For a tongue I ordinarily employ a piece of common rail cut to the proper length. The lower end of the pivot H I provide with a neck, *a*, and mount thereon a bent spring, I, the ends of which bear against the under side of the bed. The spring I secure in place by applying a nut, *b*, to the end of the neck, as shown in Fig. 2, the nut also serving as a means of tightening up the spring so as to increase its tension when required. The spring, applied as shown, serves to hold the pivot down snugly to its seat as it wears away, to prevent one end of the tongue from jumping up when the wheels strike the opposite end, and, by producing friction, to prevent the tongue from being jarred or rattled out of position after having been adjusted. On the upper face of the bed-plate I form two ribs or lugs, *m*, to limit the lateral movement of the tongue, and on the ends of the bed I either cast or bolt lugs *o*, to receive and hold the ends of the rails so as to keep them in line with the ends of the tongue.

The bed-plate constructed as shown and provided with the pivot, arranged as described, forms a very cheap and solid support for the tongue, allows it to be readily removed and replaced when necessary, prevents it from being obstructed by snow, ice, or dirt, and from being displaced or bent by the strain coming suddenly upon it.

In order to operate the tongue and the switch-rails simultaneously and by one movement I connect the tongue D, by a rod, Q, with one arm of an elbow-lever, P, the other arm of which is connected, by a rod, O, with a second elbow-lever, N, which latter has its remaining arm connected to a rod, L, by which the switch-rails are shifted. The rod L I connect to the lower end of an upright handle-lever, M, as shown. Upon moving the handle-lever in one direction it will, through its connections, set the switch-rails and the tongue in the positions shown in Fig. 1, so as to cause the train to travel off on the side track, while if it be moved over in the opposite direction it will shift the tongue and switch-rails so as



to produce a continuous straight track to carry the train past the side track. This arrangement of parts for operating the switch is extremely simple, cheap, and strong, and is free from all liability of derangement from ordinary causes. The rods L and Q I connect to the rails by means of wrought-iron clamps T, as shown. The clamps are formed by taking a wrought-iron plate and cutting a tongue or lip, *n*, loose at each corner, and then turning the lips upward, as shown, so as to engage over the foot of the rail. In applying them they are slipped on from the end and the tongues or lips clinched down by a hammer so as to clamp them firmly in place and prevent them from moving on the rail. Through the end or ends of the clamp I make a hole by which to attach the coupling or operating rods, the rods being connected thereto by a bolt, key, or other suitable device. The clamps thus constructed are exceedingly cheap and strong, are easily applied, and hold themselves securely in place.

By my various improvements I produce a switch having a continuous rail, cheap and simple in its construction, and reliable in operation, which possesses many advantages over those now in use.

It is obvious that the size and shape of the bed-plate and the arrangement of the spring I may be varied as desired, and that the face of the bed-plate and the seat of the pivot may be chilled to prevent wear. Instead of operating the vibrating tongue by the second elbow-lever and rod, the end may be accomplished by providing the pivot-block with a rigid arm, R, and connecting the end of the

same by a rod with the elbow-lever N, as shown in Fig. 1. This arrangement, being simpler than the other, may perhaps be preferred in practice.

In order to prevent the nut *b* from working loose I apply to it a locking device, S, as shown in Fig. 2. The device consists of a thin metal strip having one end inserted under the nut and riveted fast to the spring, and having its opposite end provided with an opening of the proper size and bent down over the nut, as shown.

Having thus described my invention, what I claim is—

1. The metal bed-plate E, constructed substantially as described, and provided with the flanged pivot-block H, to support a vibrating tongue, as set forth.

2. In combination with the bed-plate E and the pivot-block H having the tongue D secured to it, I claim the spring I, arranged substantially as described, and for the purposes set forth.

3. In combination with the vibrating tongue D and the shifting switch-rails C, I claim the elbow-levers N P and the rods L O Q, arranged to operate as described.

4. The wrought-iron clamps T, constructed as shown and described, for attaching the coupling and operating rods to the shifting-rails and the vibrating tongue, as set forth.

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Witnesses:

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