

(No Model.)

N. W. BOYD.
RAILWAY FROG.

No. 462,297.

Patented Nov. 3, 1891.

Fig. 1.

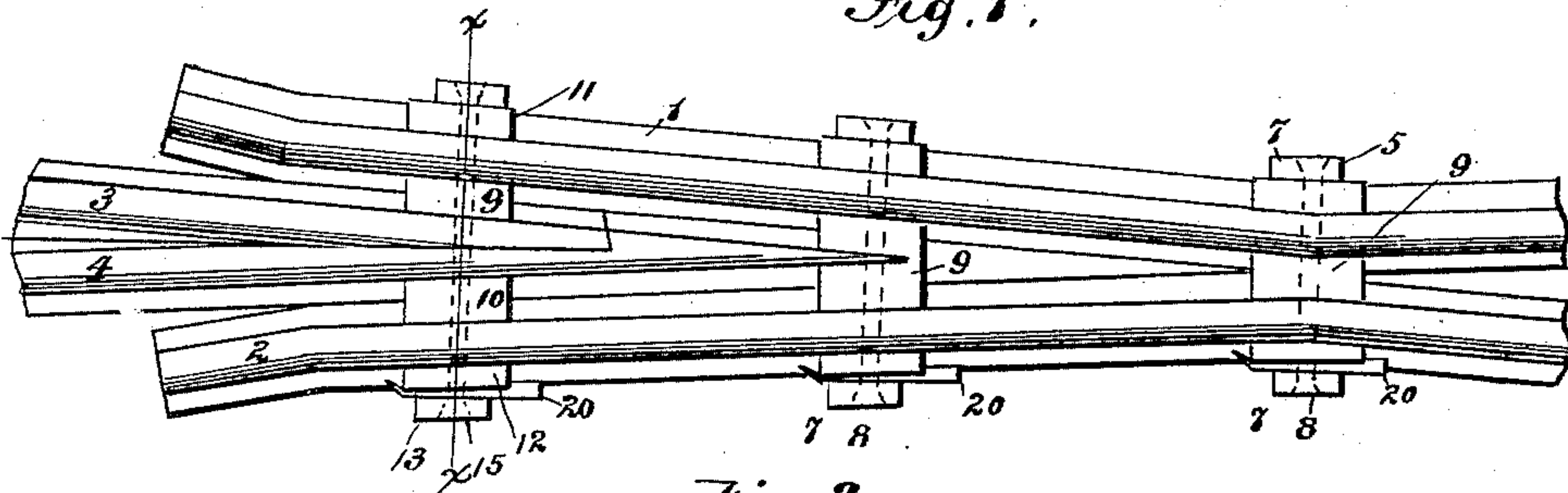


Fig. 2.

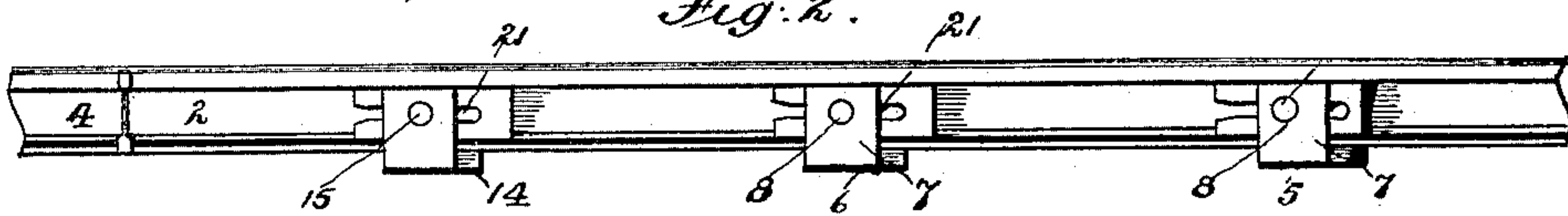


Fig. 3.

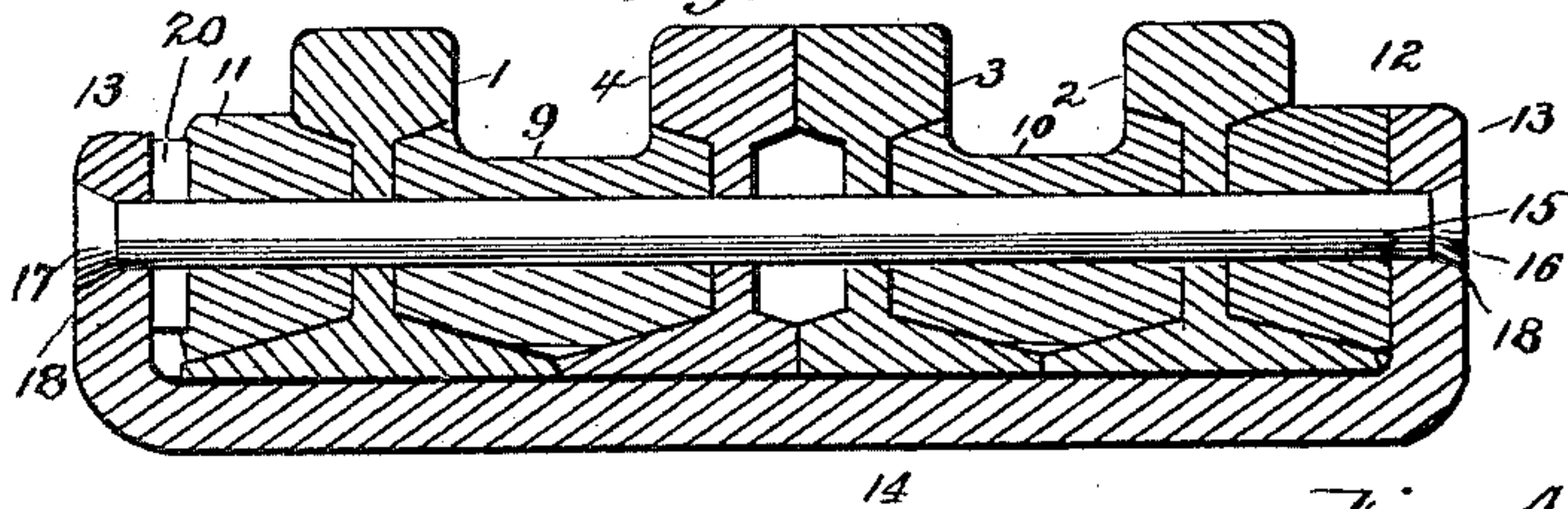


Fig. 6.

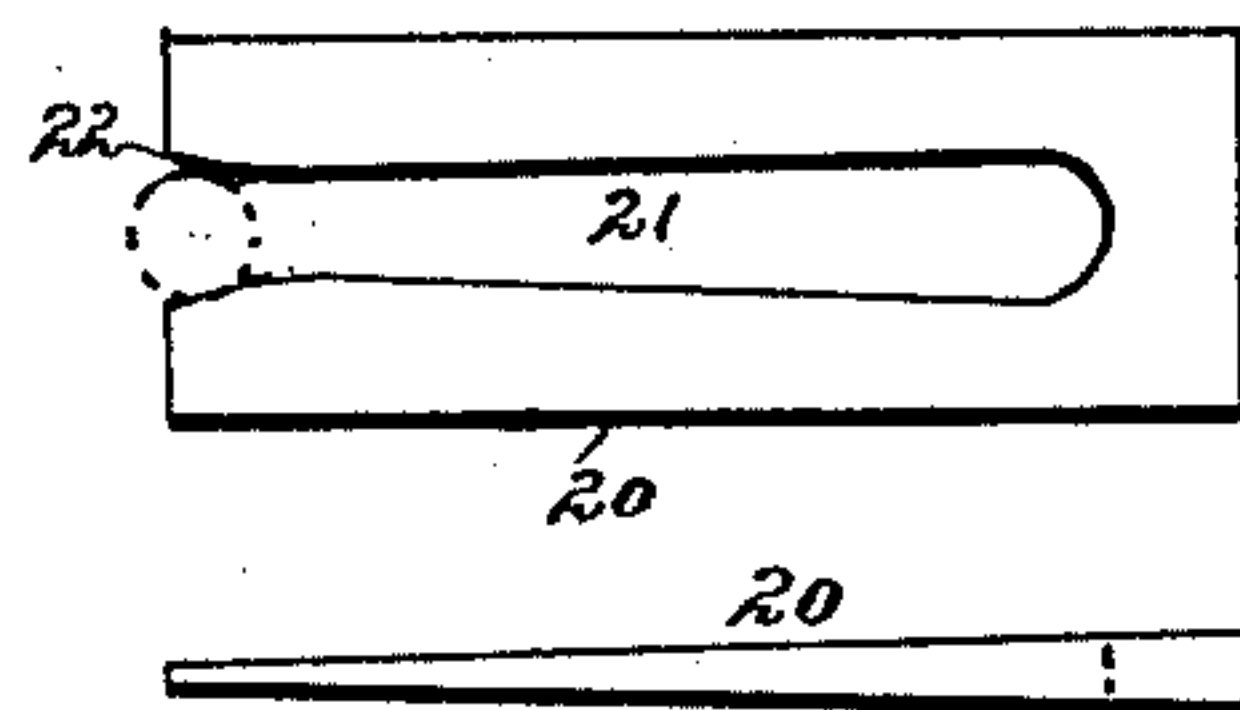


Fig. 4.

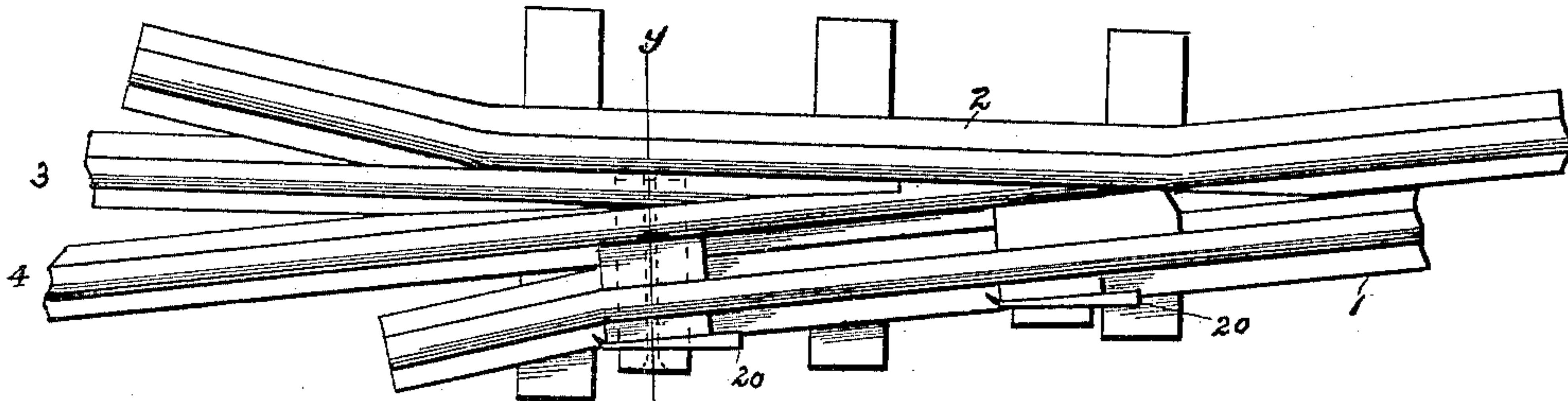
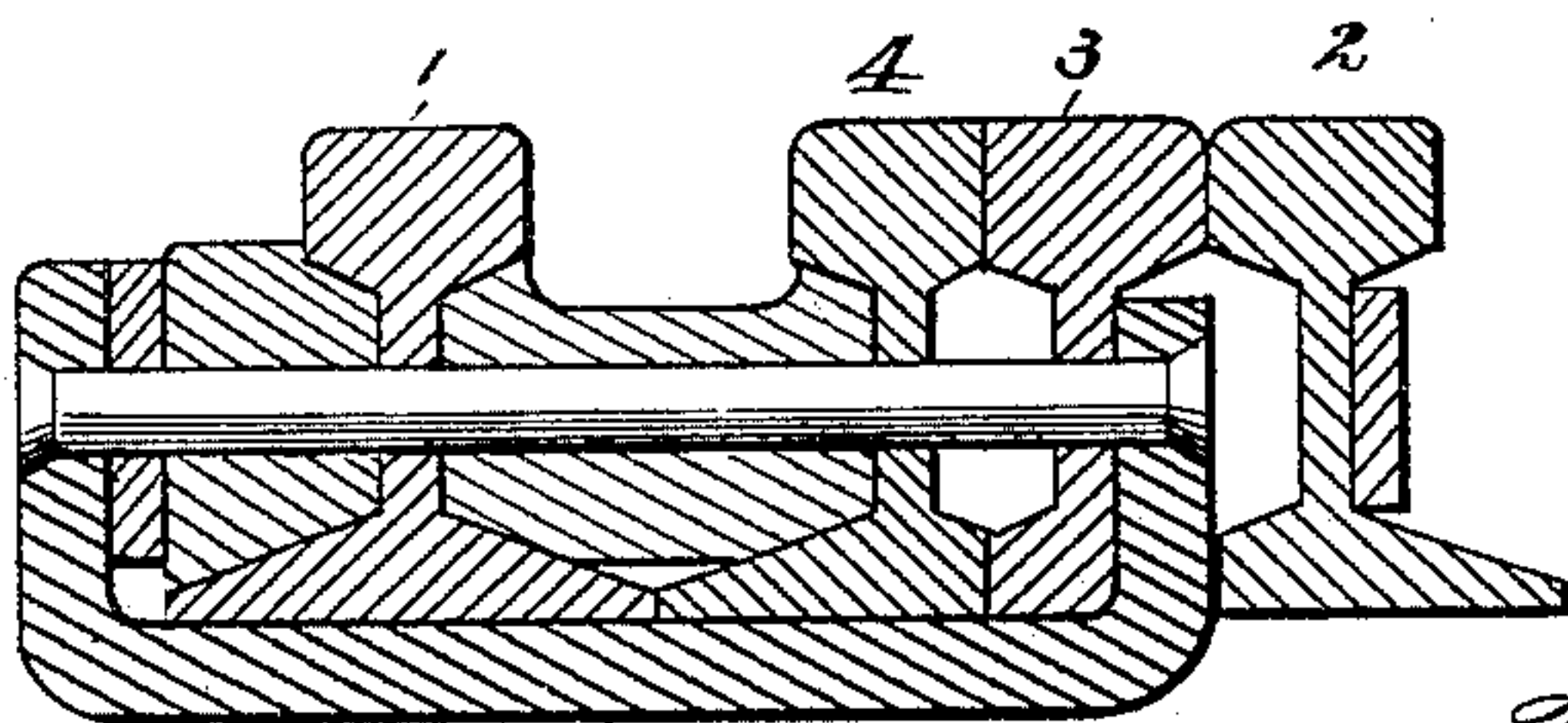


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

NATHANIEL W. BOYD, OF CARLISLE, PENNSYLVANIA.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 462,297, dated November 3, 1891.

Application filed July 3, 1891. Serial No. 398,350. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL W. BOYD, a citizen of the United States, residing at Carlisle, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Frogs; and I do hereby 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.

My present invention relates to improvements in railway-frogs; and the novelty consists of the peculiar construction and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a railway-frog embodying my present invention. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged vertical transverse sectional view on the plane indicated by the dotted line *xx* of Fig. 1. Fig. 4 is a plan view of a spring-rail railway-frog; and Fig. 5 is a transverse section on *yy* of Fig. 4, illustrating the adaptation of my present improvement to this class of frogs. Fig. 6 is a detail view of the slotted key in plan and edge view.

Like numerals of reference denote corresponding parts in the several figures of the drawings.

The present invention is more particularly designed as an improvement in that class of railway-frogs which employ a binder or clamp for holding the stationary rails in fixed position relatively to each other—as, for instance, the frog shown in the patent to Richardson, No. 417,506, dated December 17, 1889; but such frogs are open to the objection of being forced laterally, or “yawning,” under the heavy weight of a passing engine and rolling-stock of the road.

It is the object of the present improvement to overcome this objection, and at the same time promote the general efficiency and durability of the frog, and to simplify and cheapen the construction.

The invention consists in the combination, with the rails, the distance or filling-in pieces thereof, and the clamp or binder having upturned ends, of a single continuous bolt which passes through the rails, the blocks, and the upturned ends of the clamp and provided with

conical heads which are countersunk in said upturned ends of the clamp, and a slotted key or fastening-plate having the bolt fitting in its slot and driven between one end of the binder or clamp and one of the filling-in blocks.

Referring further to the drawings, 1 designates the main-line rail, 2 one of the side rails, and 3 4 the frog-rails. The main and siding rails are clamped together by binders or clamps 5 6, having the upturned ends 7 and the bolts 8, said rails being held or spaced at proper distances apart by the blocks 9. The frog-rails are spaced relatively to the main and switch rails by the usual spacing-blocks 9 10, and other blocks 11 12 are fitted between the rails 1 2 and the upturned ends 13 of the clamp or binder 14, which lies below the rails and blocks. A single bolt 15 passes through the webs of the rails, the blocks, and the upturned ends of the clamp 14. The bolts 8 15 are not of the common ordinary form, with a head at one end and thread at the other end to receive a nut; but each end of the bolt is provided with a conical head 16 17, respectively, which heads are fitted in countersunk openings 18, formed in the upturned ends of the binder or clamp. The diameter of the opening in the upturned ends of the binder is smaller at the inner end than at the outer end which receives the conical head on the bolt to prevent the head from being drawn inwardly through said bolt-hole, and in practice I may make one of the heads separate from the bolt and screw the same on the end of the bolt after the latter has been passed through the rails and blocks, the parts being so proportioned and arranged that both conical heads of the bolt will bind in the bolt-holes when the parts are tightened up.

A slotted key or fastening-plate 20 is employed to tighten up the frog after the parts and bolt have been adjusted. This key consists of a tapering tempered-steel plate, which is driven between one of the blocks and one upturned end of the binder or clamp. Instead of forming an opening or hole in the bolt to receive the key, which is the ordinary practice, but which is objectionable, as it tends to weaken the bolt, I provide the key or fastening-plate with a longitudinal slot 21, the diameter of which slot is nearly the same as the diameter of the bolt, except at the

open end, where said slot widens or flares at 22 in Fig. 6. The key or fastener is forced between the block and binder, so that the enlarged end of its slot receives the bolt within 5 itself, and as the key is driven home the sides of the key bind or impinge forcibly upon the bolt, the key thus performing a double office, first wedging the parts of the frog securely together and taking a firm hold on the through- 10 bolt, which effectually prevents displacement of the through-bolt and of the key, whereby the frog is prevented from yawning or spreading.

In Figs. 4 and 5 I have illustrated the adaptation of my improvement to a spring-rail 15 frog, in which 3 4 are the point or frog rails, 1 the main rail, and 2 the movable spring-rail, which normally hugs the point or frog rails. In this kind of frog the binder or clamp simply incloses the frog-rails and main-track 20 rail, and the bolt passes through said main and frog rails and the upturned ends of the clamp, the spring-rail lying outside of the frog-rail and the clamp. The end of the clamp contiguous to the spring-rail fits quite close 25 to the frog-rail and it lies within the vertical plane of the head of said frog-rail to obviate interference with the action of the spring-rail. (See Fig. 5.)

The operation of my improved frog will be 30 readily understood by those skilled in the art from the foregoing description taken in connection with the drawings.

I am aware that modifications can be made 35 in the form and proportion of parts and details of construction of the devices herein shown and described as an embodiment of my invention, and I therefore hold myself at liberty to make such alterations as fairly fall within the scope of my invention.

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

1. In a railway-frog, the combination, with the rails, the filling-blocks, and a binder or clamp, of a single through-bolt having its 45 head countersunk in the clamp, and a slotted key which receives the bolt within itself, substantially as described.

2. In a railway-frog, the combination, with the rails, the filling-blocks, and a binder or 50 clamp, of a single imperforate through-bolt and a spring key or plate having a longitudinal slot which receives the bolt within itself, substantially as described.

3. In a railway-frog, the combination, with 55 the rails and the filling-blocks, of a binder or clamp having its upturned ends provided with countersunk openings, a single through-bolt provided with conical heads which fit snugly in said countersunk holes, and a key, 60 substantially as described.

4. In a railway-frog, the combination, with the rails, the filling-blocks, and a binder or clamp, of a single imperforate through-bolt 65 and a wedge-shaped spring key or plate having a longitudinal slot of less width than the diameter of the bolt and receiving the latter within itself, substantially as described.

5. In a railway-frog, the combination, with the rails and the filling-blocks, of a binder or 70 clamp having its upturned ends provided with countersunk openings, the through-bolt provided with the conical heads which fit snugly in said holes, and the tapering key having the slot which receives the bolt and causes the 75 key to impinge forcibly thereon, substantially as described.

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

NATHANIEL W. BOYD.

Witnesses:

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W. F. SADOW.