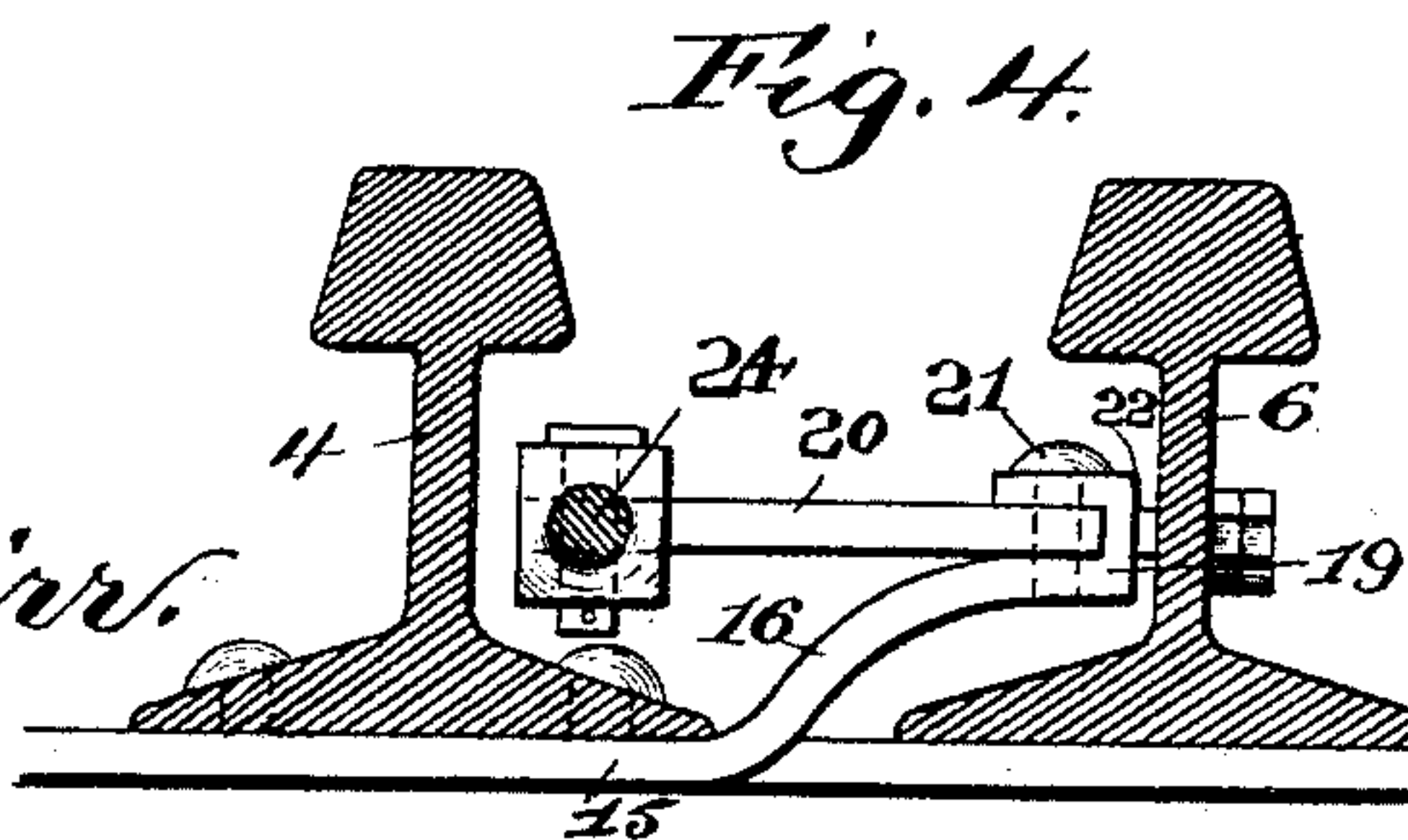
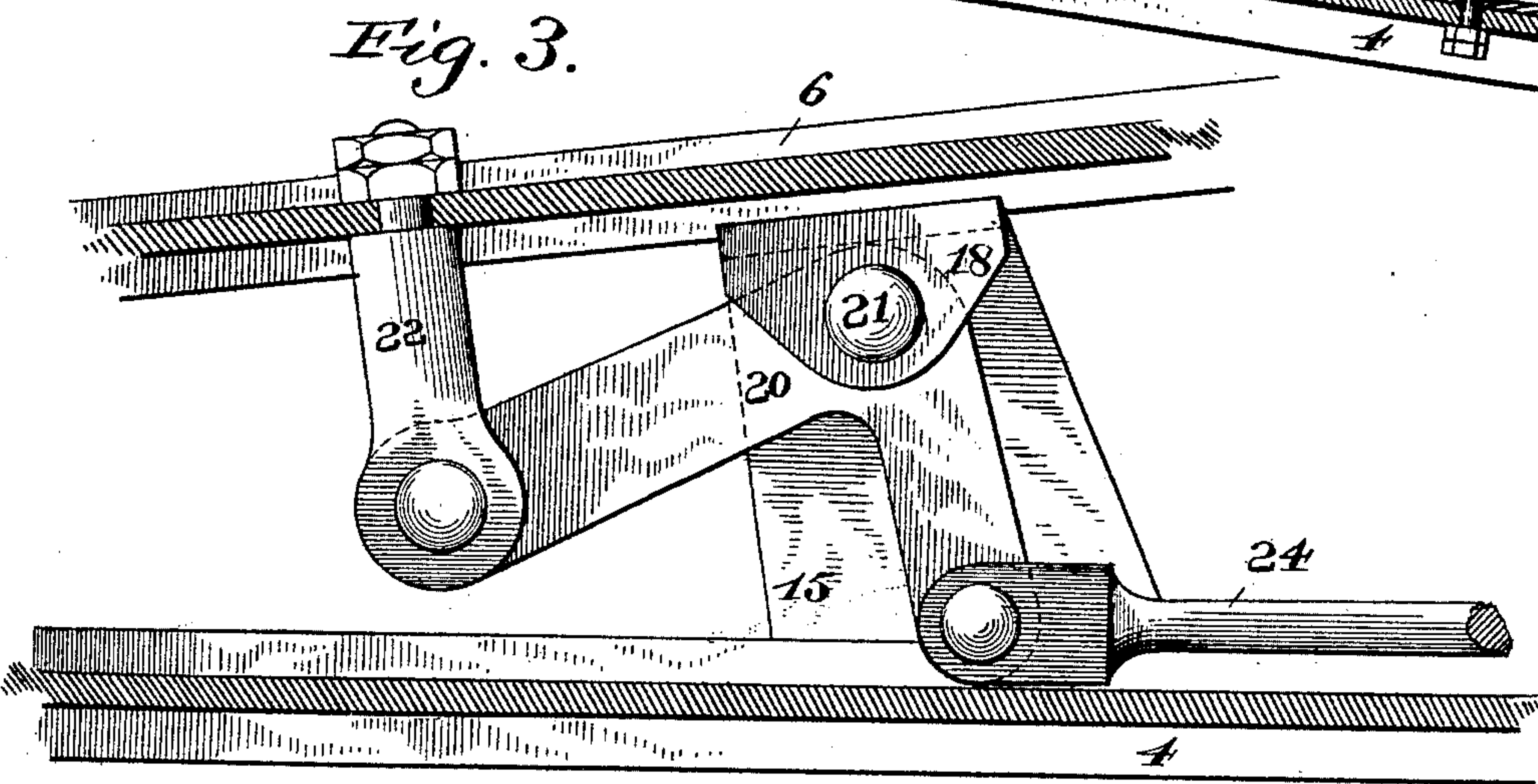
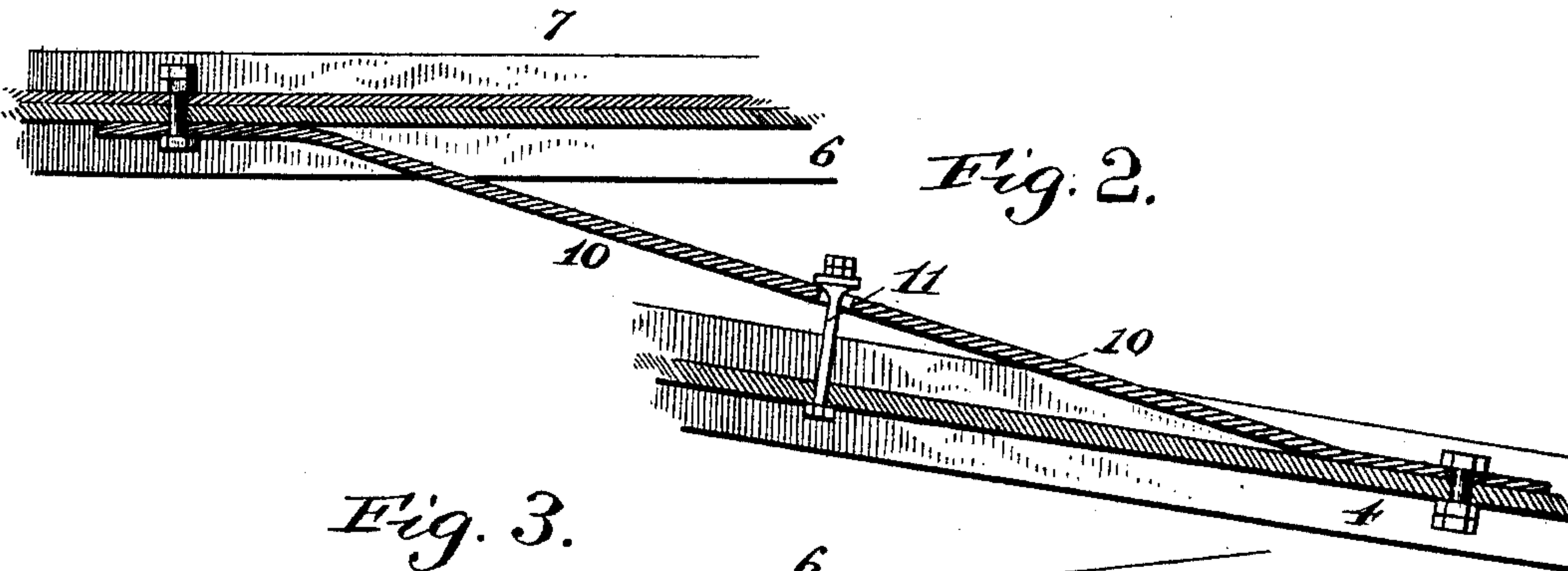
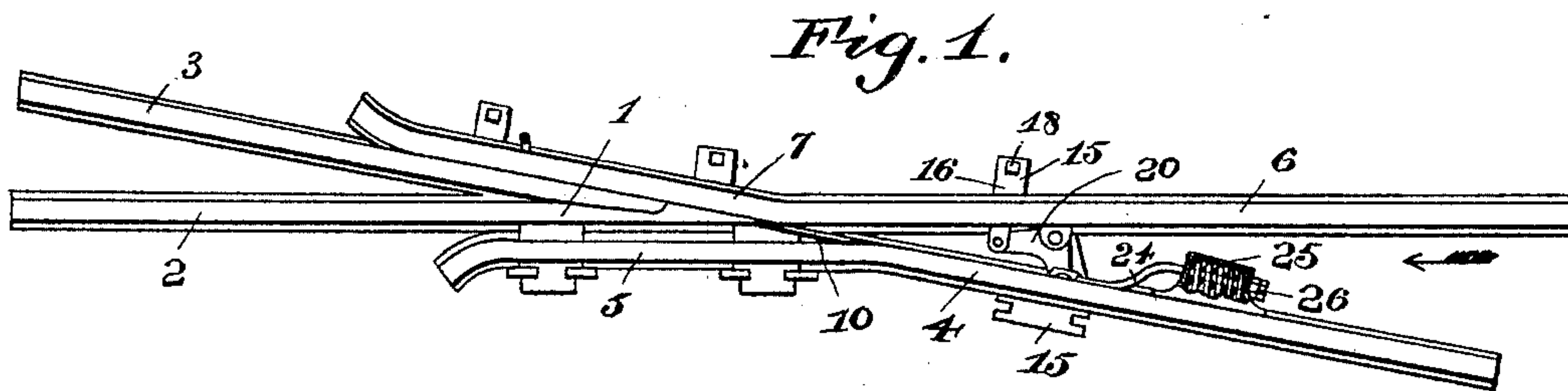


(No Model.)

N. W. BOYD.
SPRING RAILROAD FROG.

No. 435,727.

Patented Sept. 2, 1890.



Witnesses:

J. B. McGirr.
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UNITED STATES PATENT OFFICE.

NATHANIEL W. BOYD, OF CARLISLE, PENNSYLVANIA.

SPRING RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 435,727, dated September 2, 1890.

Application filed February 12, 1890. Serial No. 340,125. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL W. BOYD, a citizen of the United States, and a resident of Carlisle, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Spring Railroad-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 spring-rail frogs for railway-tracks; and the object of the invention is to prevent the wing or movable rail from "creeping" or moving laterally of the frog-point when said rail is struck by the flanges of the car-wheels, and to provide means for normally holding the movable or wing rail snugly against the point of the frog.

A further object of my invention is to simplify the parts and to arrange the wing operating or controlling devices within the body of the frog, so as to be out of the way of the wheel-flanges or a "false flange" on the car-wheels.

With these ends in view my invention consists in the combination of a frog-point, a stiff rail, a movable wing-rail which is bent at an intermediate point of its length to lap against the frog-point, and a spring-bridle arranged in the plane of the webs of said rails and attached at one end to the movable wing-rail at the point where said wing-rail is bent or curved, whereby the spring-bridle holds the movable wing-rail in place when said rail is acted on by the flanges of wheels passing in either direction over the rails of the main line, and said rail is thus prevented from creeping or moving laterally of the frog-point, thus obviating exposure of the frog-point.

My invention further consists of a contrivance which assists the spring-bridle in keeping the movable wing-rail snugly against the frog-point, said contrivance comprising a bell-crank lever having one arm attached or connected to the movable wing-rail at one side of the bend thereof, a coiled spring, and a rod connected to the other arm of the bell-crank lever and to the coiled spring. This contrivance is located between two adjoining

rails within the body of the frog and in the plane of the webs of the rails, so as to be out of the path of the flanges of the wheels.

My invention further consists in the peculiar construction and combinations of devices as will be hereinafter fully described and claimed.

To enable others to understand my invention, I will now proceed to a detailed description thereof in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a spring-frog for railway-tracks constructed in accordance with my invention. Fig. 2 is a horizontal sectional view through the webs of the stiff or fixed rail and the movable wing-rail and the spring-bridle intermediate of said rails. Fig. 3 is an enlarged view, partly in section and partly in plan, of the contrivance for holding the wing-rail. Fig. 4 is an end view of the device shown in Fig. 3, with the stiff and wing rail in cross-section.

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

In Fig. 1 I have shown an ordinary railway-frog, to which my improvements are applied; and this frog consists of the frog-point 1, formed by the angularly-disposed rails 2 3, the stiff or fixed rail 4, having its end 5 bent substantially parallel with the frog-point 1 for a short distance on one side of the same, and 6 the movable or wing rail, which is bent at 7 so as to have its inclined end lie parallel and in close contact with the opposite side of the frog-point 1. No novelty is herein claimed for the parts just mentioned, as they are common to the ordinary spring-frogs of railway-tracks.

The prime objection to the use of ordinary spring-frogs is the tendency or liability of the movable wing-rail 6 to "creep" or move laterally away from the frog-point 1 when the flanges of the passing wheels impinge or strike against said rail, thus exposing the point of the frog and causing the wheels to leave the track and wreck the train.

It is the aim of my present invention to prevent the movable wing-rail from creeping or moving laterally of the frog-point, and to accomplish this object I have provided contrivances which normally hold the

end of the wing-rail in close lateral contact with the frog-point.

10 designates a spring-bridle, which is attached to the bent or angular end 7 of the 5 movable wing-rail, and the other end of said spring-bridle is attached to a fixed object, preferably the stiff or fixed rail 4 of the frog. This spring-bridle is preferably in the form of a flat leaf-spring, and it is arranged in the 10 horizontal plane of the webs of the stiff and movable rails, the ends of the spring-bridle being attached by bolts to the webs of said rails. A draw-bolt 11 is attached to the spring-bridle at an intermediate point of the 15 length thereof, one end of said draw-bolt being attached to the web of the stiff rail and the other headed or nutted end of said bolt fitting in an aperture or slot in the spring-bridle.

20 By the use of the spring-bridle and by locating the same so that it attaches to the movable wing-rail at the bent or angularly-disposed end of the rail said wing-rail is normally held in close lateral contact with the 25 frog-point and is effectually prevented from creeping or moving laterally, which displacement of the wing-rail exposes the frog-point.

The spring-bridle is or may be supplemented by the bell-crank lever and coiled 30 spring, (shown more clearly in Figs. 1 and 2,) in which the force or tension of the spring is exerted on the body of the movable wing-rail on the opposite side of the bend or angular part 7 thereof, to which the tension or force 35 of the spring-bridle is directly applied.

15 designates a clamp-plate, which passes beneath the stiff and wing rails and is bolted or spiked in place. This clamp-plate is split or divided longitudinally for a suitable distance—say one-half or other fractional part of 40 its length—to provide the two arms 16 17. The arm 17 of the clamp-plate is extended or projected beneath the movable wing-rail, furnishes a bearing therefor, and receives a 45 spike 18 at its outer extremity, which operates as a stop to limit the outward play or movement of the wing-rail, while the arm 16 is bent or curved upward at a point between the two rails 4 6 and turned down upon itself 50 (see Figs. 3 and 4) to provide an elevated seat 19 for the bell-crank lever 20. This bell-crank lever is fitted on the seat formed by the arm 16 of the clamp-plate and fulcrumed thereto by a vertical bolt 21; and one arm of 55 said lever is connected by a link or bolt 22 to the web of the movable wing-rail, which bolt or link passes through or is secured to the movable rail at a point a short distance at one side of the bend thereof. The other arm 60 of the bell-crank lever has a spring-rod 24 pivoted to the same, and this rod operates in a shell or housing 25, fixed laterally to the web of the stiff rail 4, said rod being controlled by a coiled spring 26, (see Fig. 1,) the 65 tension of said coiled spring being exerted on the bell-crank lever so as to draw the movable wing-rail toward the frog-rails and to keep

the end or arm 7 of said wing-rail in close lateral contact with the frog-point. The spring and bell-crank lever are located in 70 the horizontal plane of the webs of the rails, and they are thus arranged out of the path of the wheel-flanges and are not liable to be injured by said flanges or by a false flange on the car-wheels.

I do not restrict myself to the joint use of 75 the spring-bridle and the spring-controlled bell-crank lever on the movable wing-rail, as it is evident that the spring-bridle can be used without the bell-crank lever, as shown 80 in Fig. 2, and that the coiled spring and bell-crank lever can be used separately from the spring-bridle, as indicated in Figs. 3 and 4; but I prefer to use said parts jointly and locate the same as herein described, and shown 85 more particularly in Fig. 1, as I have found that said parts serve efficiently in preventing creeping or displacement of the wing-rail.

The operation and advantages of my invention will be readily understood and appreciated 90 by those skilled in the art from the foregoing description, taken in connection with the drawings.

Changes in the form and proportion of parts and details of construction of the mechanisms herein shown and described as 95 embodiments of my invention can be made without departing from the spirit or sacrificing the advantages of the invention, and I would therefore have it understood that I reserve 100 the right to make such modifications as fairly fall within the scope of my invention.

I do not strictly confine myself to the location of the spring-bridle and the spring-controlled lever within the body of the frog, as I 105 am aware that said bridle and lever can be located at the outer end of the inclined or bent end of the movable wing-rail. I would therefore have it understood that I reserve the right to locate said parts at the outer end 110 of the movable wing-rail, between the latter and one of the rails of the frog, although I prefer to arrange the bridle and lever as herein shown, for reasons which have heretofore been explained. 115

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

1. In a railway-frog substantially as described, the combination of a frog-point, a 120 stiff rail, a movable wing-rail which is bent at an intermediate point of its length to lap against the frog-point, and a spring-bridle arranged in the plane of the webs of said rails and attached at one end to the movable 125 wing-rail at the point where said wing-rail is bent or curved, as and for the purpose described.

2. In a railway-frog, the combination, with a movable wing-rail and a stiff rail, of a leaf-spring bridle attached to the webs of said rails, 130 and a draw-bolt connected to the bridle at a point intermediate of the length thereof and to the stiff rail, whereby said bolt can be ad-

justed to vary the tension of the spring-bridle, as and for the purpose described.

3. In a railway-frog, the combination, with a movable wing-rail, of a spring-bridle connected to said rail, and a spring-controlled lever also connected to the wing-rail, as herein set forth.

4. In a railway-frog, the combination, with a movable wing-rail having the angular arm adapted to contact with the frog-point, of a spring-bridle connected to the wing-rail at the bend thereof, a lever attached to the wing-rail at a short distance from the bend, and a spring connected to the lever, as and for the purpose described.

5. In a railway-frog, the combination, with a movable wing-rail having the angular bend or arm adapted to contact laterally with a frog-point, of a spring-bridle attached directly to the wing-rail at the bend thereof, a bell-crank lever attached to the wing-rail at a point from the bend of the same, and a coiled spring connected to the bell-crank lever, as and for the purpose described.

6. In a railway-frog, the combination, with a wing-rail, of a bell-crank lever having one arm connected to said rail, a coiled spring,

and a spring-rod pivoted to the other arm of the lever, as and for the purpose described.

7. In a railway-frog, the combination, with a movable wing-rail and a stiff rail, of a bell-crank lever located in the plane of the webs of said rails and situated between the same, one arm of said lever being connected to the wing-rail, a housing secured laterally to the web of the stiff rail below the head thereof and containing a coiled spring, and a spring-rod extending from the spring to the other arm of the bell-crank lever, as and for the purpose described.

8. In a railway-frog, the combination, with a movable wing-rail and a stiff rail, of a fixed clamp-plate having a seat situated between said rails, a bell-crank lever fulcrumed on said seat and attached at one end to the wing-rail, and a coiled spring carried by the stiff rail and connected to the other end of the lever, as and for the purpose described.

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

N. W. BOYD.

Witnesses:

H. J. BERNHARD,
WILLIAM O. BELT.