

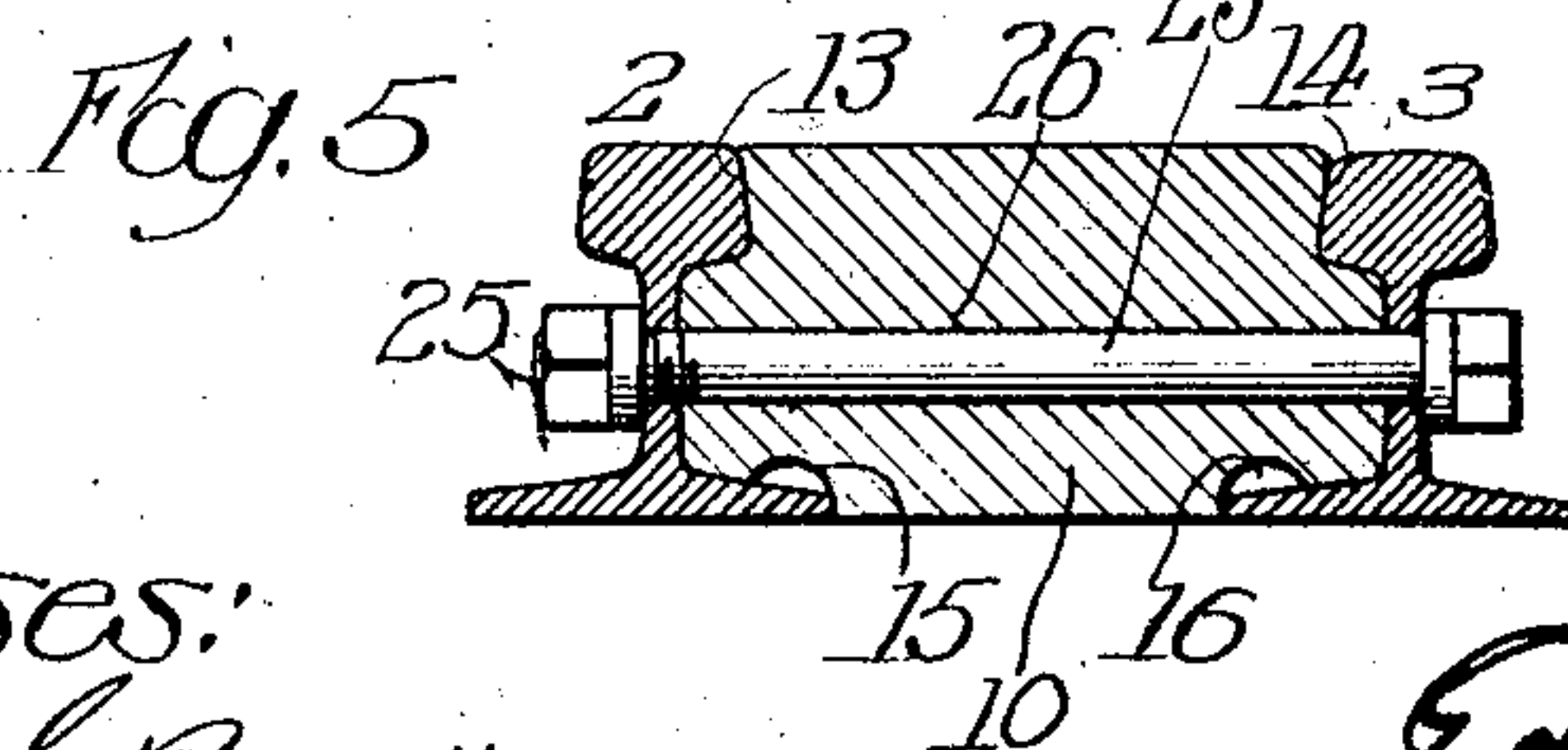
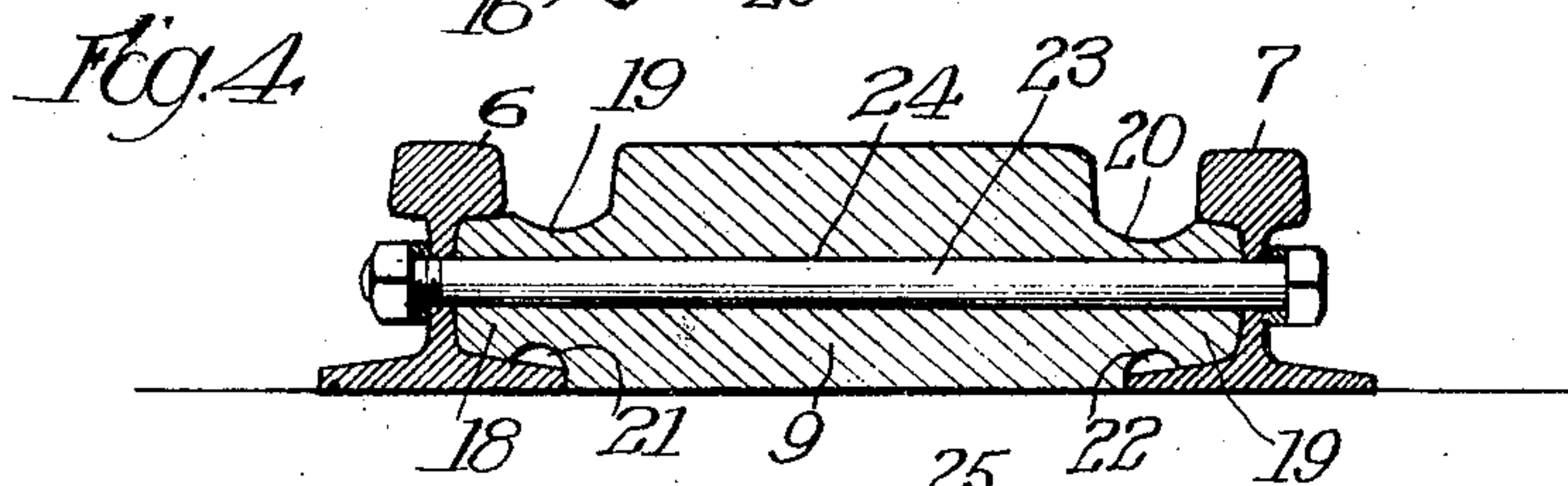
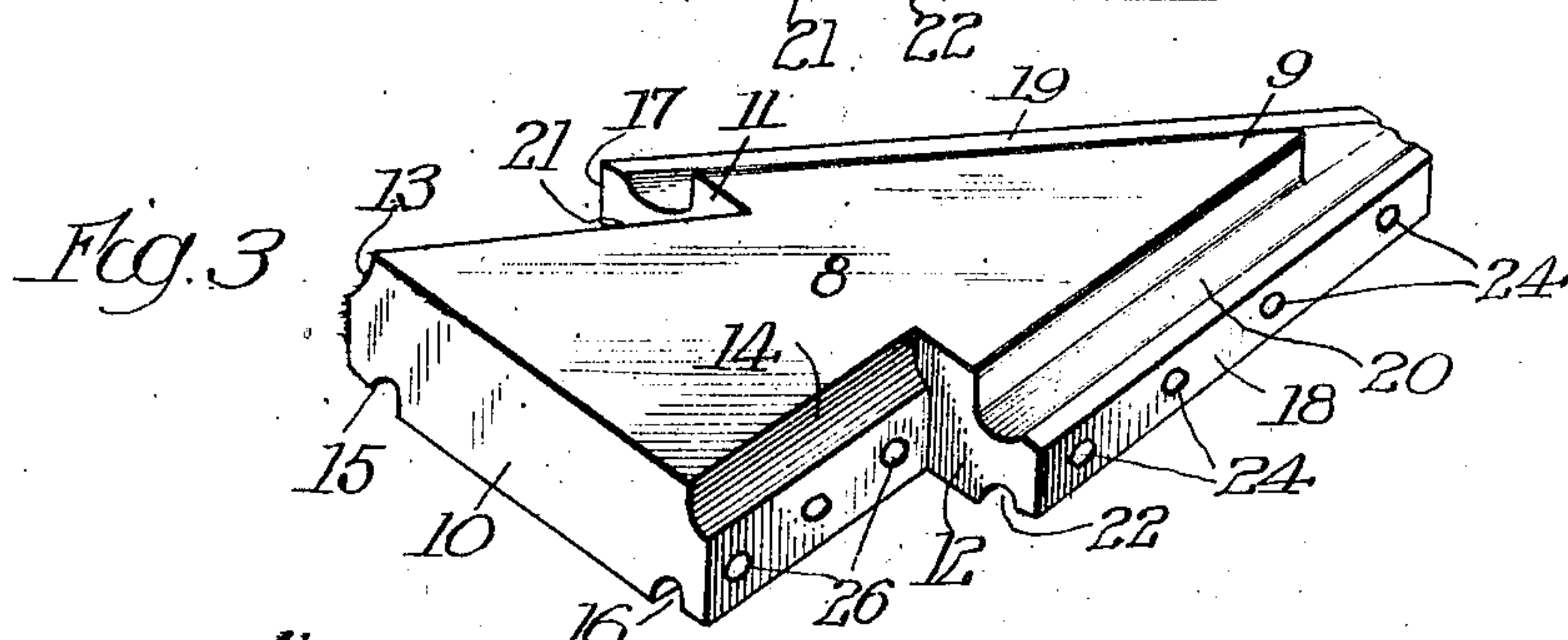
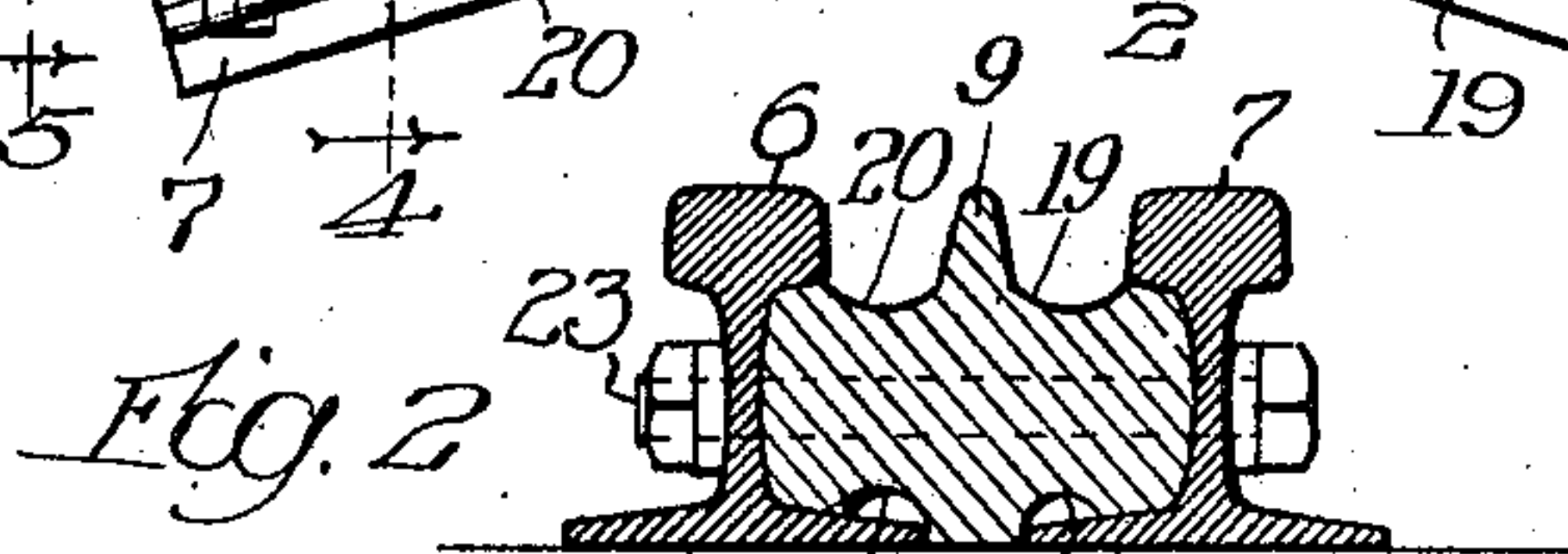
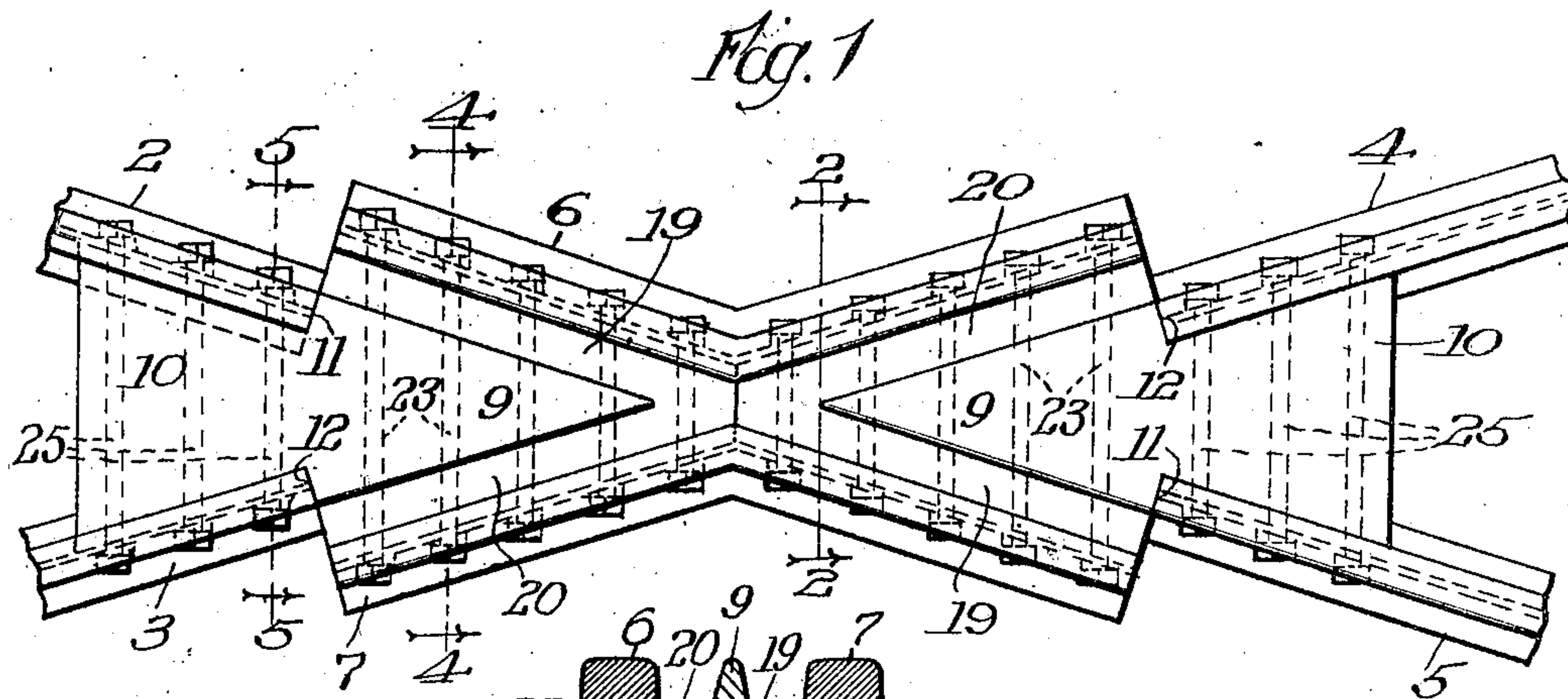
E. SWENBERG & R. ENSTROM.

RAILWAY FROG.

APPLICATION FILED AUG. 2, 1909.

944,350.

Patented Dec. 28, 1909.



Witnesses:

Harold G. Barrett

Robert H. Meir

Inventors

Edward Swenberg  
Robert Enstrom

J. Warner Cookstrom  
Attorney



# UNITED STATES PATENT OFFICE.

EDWARD SWENBERG AND ROBERT ENSTROM, OF CHICAGO, ILLINOIS.

## RAILWAY-FROG

944,350.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed August 2, 1909. Serial No. 510,898.

*To all whom it may concern:*

Be it known that we, EDWARD SWENBERG and ROBERT ENSTROM, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Frogs, of which the following is a specification.

Our invention relates to railway construction and has particular reference to improvements in crossing frogs.

The general objects of the invention are to prolong the life of the frog and obviate the frequent replacements heretofore made necessary owing to the comparative weakness of the frog-point; to provide for increased safety against accidents; to make the frog's resistance to wear and damage more nearly equal to that of the body of a track-rail; to save time and labor; to obviate the common difficulty of looseness of fillings between frog and adjacent rails, and to provide in one member, or integral casting, a substantial frog, fillings or spacers between such frogs and its adjacent rails and a firm relative support of frog and rails.

Owing to the comparative narrowness of a frog-point and the gap or space over which a car wheel must "jump" to and from such point the life of the latter is usually comparatively short, hence the frogs of a railway are, as is well known, a source of constant expense and trouble to the construction department of a railway.

The well known and usual method of forming a railway frog is to miter the ends of the rails at their junction so as to produce a tapered point and bolt the two beveled ends of the rail together. At the joint thus made to produce a frog in two sections the rails must be carefully planed and fitted, which involves labor, expense and time. Furthermore it is necessary to provide fillings between the sides of the frog and the adjacent rails, which fillings must be planed or fitted with care to provide a space for the car wheel flanges of the necessarily exact width in order to guard against derailments at the frog-point. These fillings have also been a source of trouble by reason of their working loose, rusting away at their rail contact surfaces, etc.

Our invention is designed to obviate these difficulties, and said invention consists in the novel form of frog and in its combination and arrangement with relation to adjacent

rails, all as hereinafter described in detail, illustrated in the drawing and incorporated in the appended claims.

In the drawing—Figure 1 is a plan view of a section of railway trackage with our invention applied thereto. Fig. 2 is a section taken substantially on line 2—2 of Fig. 1. Fig. 3 is a perspective view of our improved frog. Fig. 4 is a section taken on line 4—4 of Fig. 1. Fig. 5 is a section taken on line 5—5 of Fig. 1.

In the several views, 2, 3, 4 and 5 represent the track-rails and 6 and 7 represent the wing or guard-rails. The pair of rails 2—3 or 4—5 are, as has been stated, usually joined and formed into a point by beveling off the contacting surfaces, but in our invention, as will be noted by reference to Fig. 1, these converging pairs of rails do not meet in points but are left with square ends and are provided with a separate and solid point common to both rail-ends, or an integral frog 8 comprising a tapered point-portion 9 and a heel portion 10. Between its point 9 and heel 10 the frog 8 is formed with offsets, or shoulders, 11 and 12 against which the rails 2, 3 or 4, 5 abut, as shown in Fig. 1. The upper edges of the heel portion 10 are grooved away to form troughs or channels 13 and 14 each adapted to receive and snugly fit the laterally projecting portion of a rail-head, or that portion of the head of the rail which projects beyond the vertical plane of the rail-web while the sides of the heel portion 10 contact with the respective rail-webs, as shown in Fig. 5. The bottom surface of the heel 10 is cut away at 15 and 16 to let in the adjacent portions of the rail feet and bring the under surfaces of the latter in line, or flush with, the under surface of the heel 10. The point 9 of the frog has integral side extensions 17 and 18, the upper surfaces of which side or lateral extensions have concavities 19 and 20 for the car wheel flanges. The under surfaces of these extensions are recessed at 21 and 22 which recesses correspond to recesses or cut-away portions 15 and 16 in the heel portion 10 and serve to let in substantially one half of the foot of each guard rail 6 and 7, as shown in Fig. 4. The extensions 17 and 18 take the place of the usual fillings or spacers referred to and provide a firm and immovable support between the point portion 9 and the guard-rails 6 and 7. The guard rails are fastened to the spacers or lateral extensions by means of



bolts 23 which pass through the rails and transverse bores 24 in the frog member 8. In like manner the rails 2 and 3 and 4 and 5 are clamped to the heel portion of the member 8 by bolts 25 passing through bores 26 and the webs of the rails. The shoulders 11 and 12 have a surface configuration which corresponds to the cross section of a rail so as to bring the sides or edges of the point 9 proper into alinement with the outer edges of the rails clamped against the heel 10.

The frog 8 being a separate member may be made of a grade of steel that is higher or harder than the rails, such as manganese steel which is a very tough grade of steel and can be made as hard as desired for the purpose of making it withstand battering down, and the member 8 may be cheaply formed by the casting process. Our improved frog is also adapted to take the place of existing worn out frogs without removing the whole rail lengths. All that is necessary is to saw off the tapered and battered ends forming the frog portions and replacing these sawed off portions with our invention. Likewise when the frog 8 itself has been worn out it may be quickly replaced by another identical frog casting without disturbing or removing the rails, and in less time than is required by the old methods of replacement.

Having described our invention, we claim as new and desire to secure by Letters Patent:

35 1. A frog consisting of a single casting embracing a triangular point and a heel portion, the base of the former offset from the latter and providing shoulders for abutting convergent rails, and side extensions  
40 for spacing guard rails apart from said point portion.

2. A frog consisting of a single member having a triangular point and a heel having sides or edges paralleling the sides or edges  
45 of said point in planes between the side planes of the point, integral spacers extending from the latter and means for securing said frog to adjacent rails.

3. The combination with a pair of diver-

gent rails and a pair of guard rails of a frog, 50 said frog having integral filling adapted to space said guard rails apart from the point of said frog, a heel portion integral with said point, said heel portion serving to space said divergent rails apart and bring the 55 sides thereof into alinement with the sides of the point of the frog, lateral spacers or extensions extending from the sides of said point and adapted to space the guard rails apart from said sides, and means for securing said frog and rails together. 60

4. The combination with the track rails and guard rails, of a frog having point and heel portions, the sides of the point portion extending beyond the sides of the heel portion, said track rails being clamped to the sides of said heel portion, and said point portion having lateral extensions, or spacers, to which said guard rails are clamped and which provide a wheel-flange space between the point portion of said frog and said guard rails and between said track rails and guard rails. 70

5. The combination with a pair of divergent track rails and a pair of guard rails, of 75 a frog comprising in a single member a point portion and a heel portion, the latter offset at its base from the former, said point portion having integral lateral extensions arranged below the upper surface of said 80 frog, said extensions having recesses in their under sides adapted to let in the adjacent portions of the rail bases, said heel portions having similar recesses for the base of each said track rail and also recesses for the heads 85 of said track rails, said frog having transversely extending bores therethrough and the bolts occupying said bores for clamping said track and guard rails to said frog.

In testimony whereof we have hereunto 90 set our hands in the presence of two witnesses.

EDWARD SWENBERG.  
ROBERT ENSTROM.

Witnesses:

M. C. ALLEN,  
J. W. BECKSTROM.