

(No Model.)

J. L. BRADY.  
GUARD RAIL.

No. 580,594.

Patented Apr. 13, 1897.

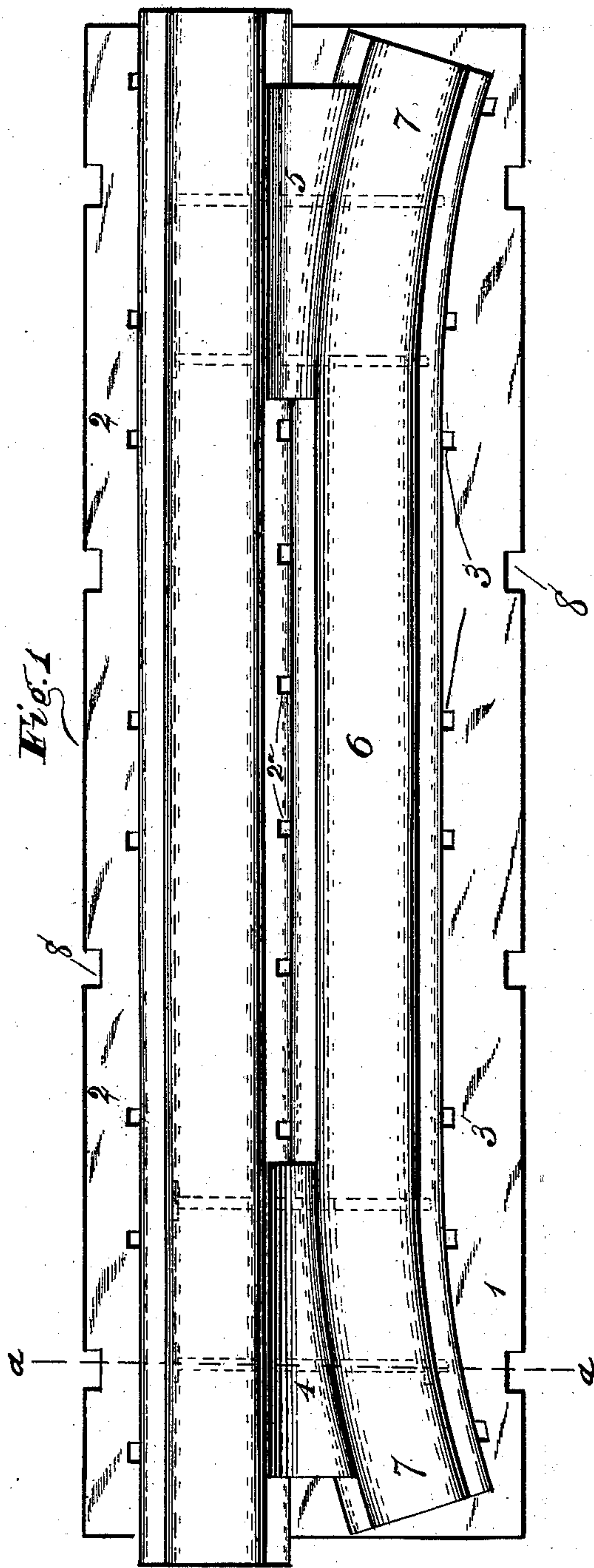


Fig. 1

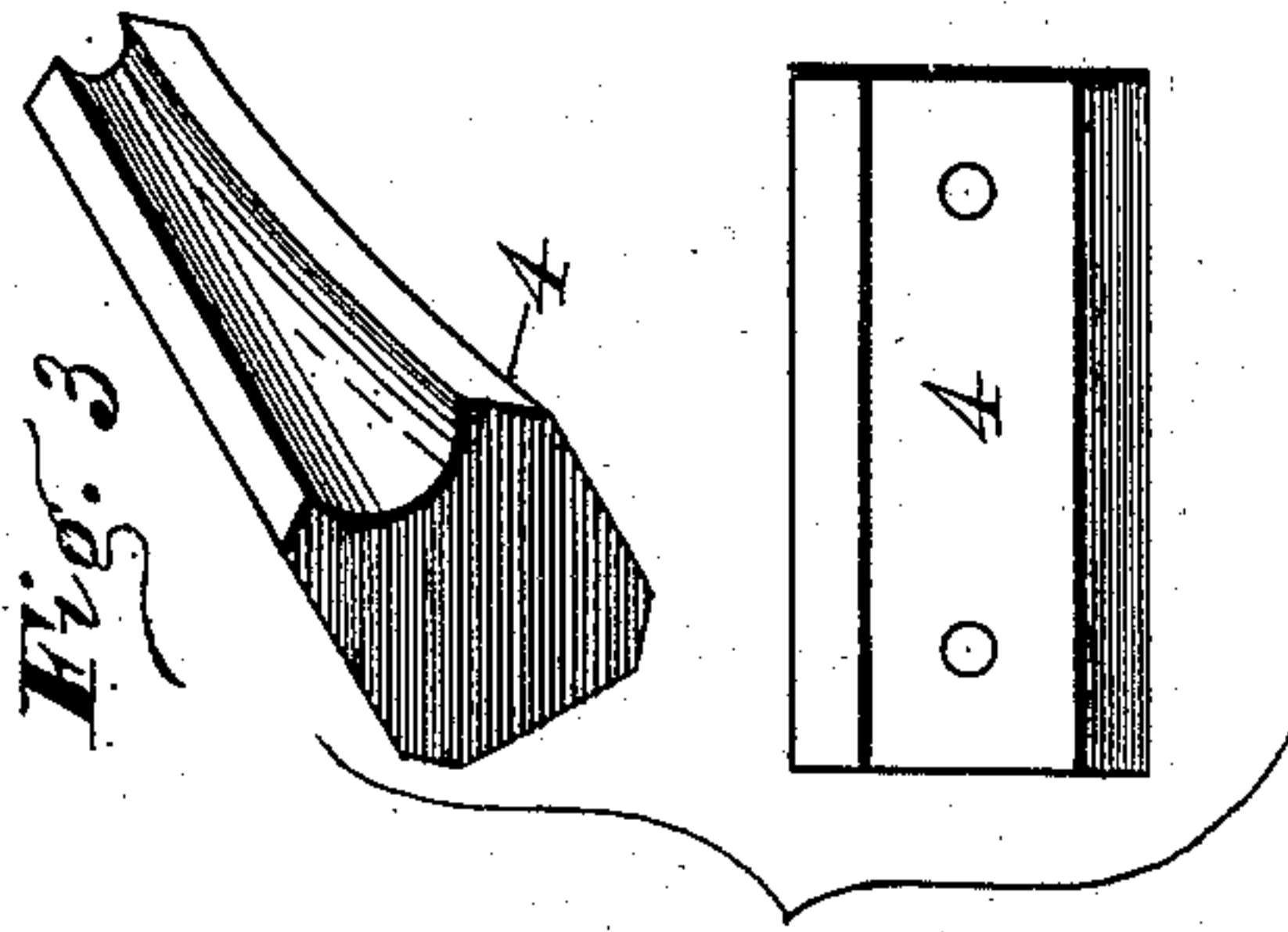


Fig. 3

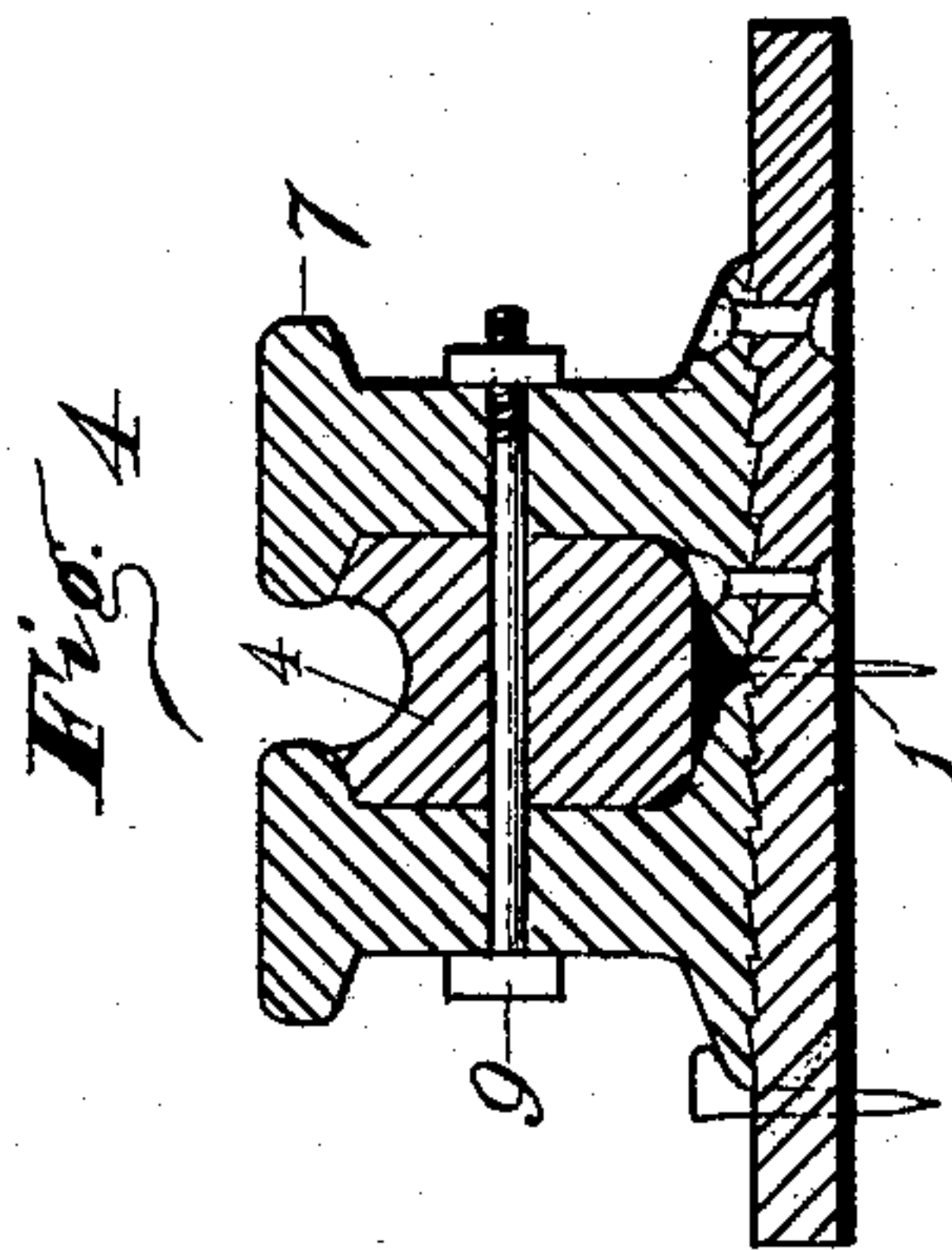


Fig. 4

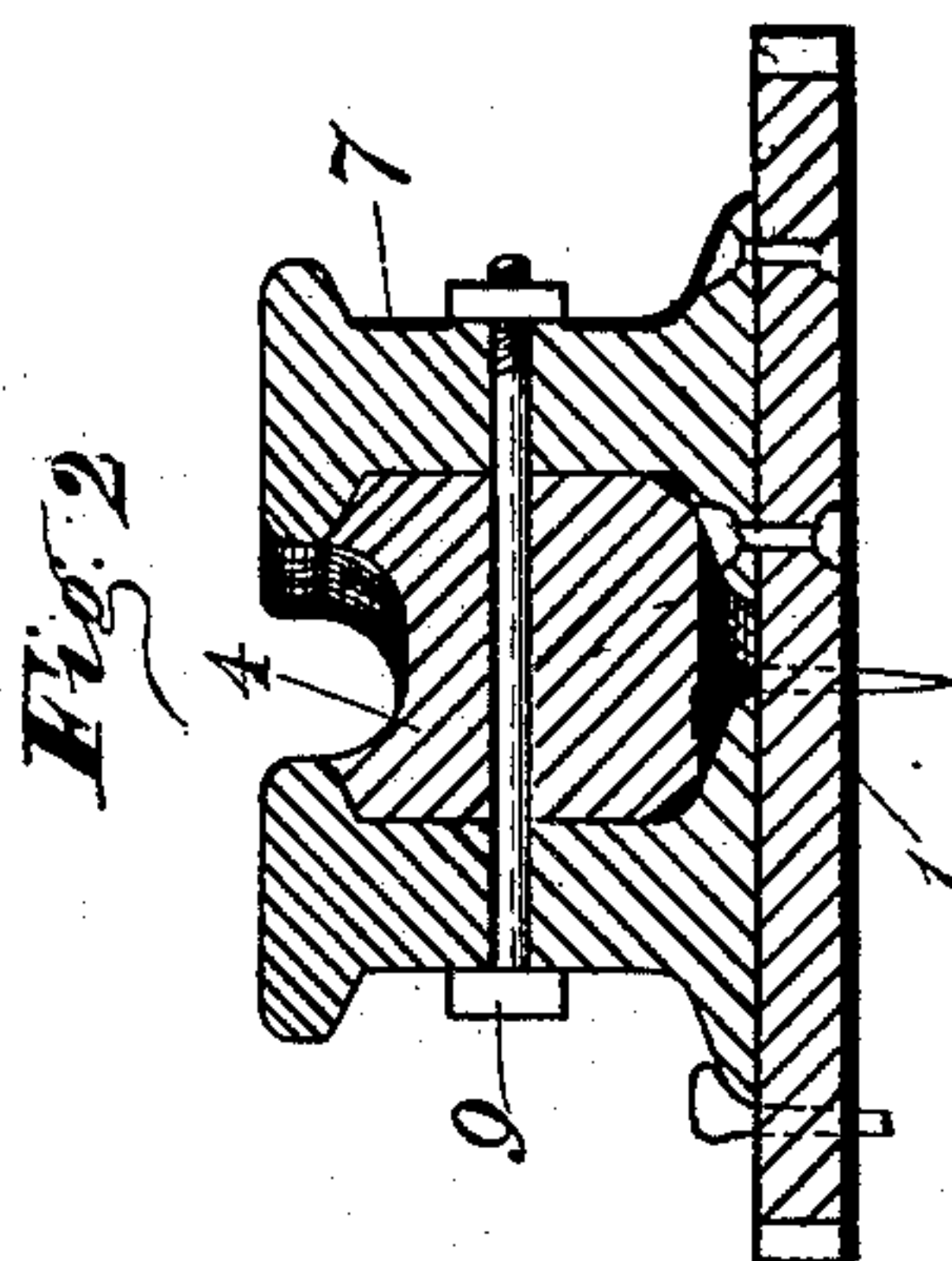


Fig. 2

WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN L. BRADY, OF LEBANON JUNCTION, KENTUCKY, ASSIGNOR OF ONE-HALF TO M. H. HAWKINS, OF SAME PLACE.

## GUARD-RAIL.

SPECIFICATION forming part of Letters Patent No. 580,594, dated April 13, 1897.

Application filed October 27, 1896. Serial No. 610,225. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. BRADY, a citizen of the United States, residing at Lebanon Junction, in the county of Bullitt and State of Kentucky, have invented certain new and useful Improvements in Guard-Rails; 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 invention has relation to improvements in railway-tracks; and it consists in certain novel details of construction and arrangement of parts, as will be hereinafter fully set forth, and illustrated in the accompanying drawings and pointed out in the claim.

The object of my invention is to provide a reliably efficient guard-rail which will be held positively in its original alinement alongside and parallel with the main rail. As is well known, the purpose subserved by the guard-rail is to so direct and guide the flange of the wheels that the wheel on the opposite end of the axle will be conducted safely through the proper line or groove in the frog. The disadvantages incident to the construction now in common use which I desire to overcome may be said to reside in the tendency of the guard-rail to move away from its adjusted position, and when thus moved from its operative place accidents arise as a result of the wheel following the wrong groove or line in the frog, producing derailment of the cars passing over the same.

A further object which I desire to attain in the construction hereinafter set forth is to provide a guard or safety attachment which will effectively close the converging opening between the main rail and the outer curved ends of the guard against the possibility of the foot of the attendant being wedged and held therein, as it is well known that many fatalities arise from said cause where no provision is made to guard against the entrance of the foot.

All of these features will be clearly set forth and the details of construction will be referred to in the drawings by figures, the same figure designating similar parts throughout the views.

In the accompanying drawings, Figure 1 is a top plan view of my invention as applied to use. Fig. 2 is a transverse section thereof on

line *a a* of Fig. 1. Fig. 3 is a detailed perspective view of the guard-block removed. Fig. 4 is a sectional view of the guard and main rails and its accompanying retaining-plate, showing a modified construction that may be employed in forming the lower surface of the rails and the upper surface of the base-plate.

It may be stated that the essential feature of my invention rests in the provision of a base-plate and means for closing the throat of the converging opening or space between the main rail and the outer ends of the guard.

In carrying out my invention I provide the base-plate 1, which consists of a heavy piece of sheet metal of suitable character, preferably of steel, having sufficient rigidity to perform the office assigned to it of sustaining the guard-rail and that section of the main rail under which it is placed. The length of the main plate and the width thereof may be varied according to the needs of each particular application thereof, and it will be understood that its length must be coextensive with the length of the guard-rail, while the width of the plate must be sufficient to receive on its upper surface the main and guard rails when adjusted and bolted together.

In order to secure the guard and main rails in their adjusted positions, I provide in the base-plate a series of spike-apertures 2, disposed along the outer edge of the main rail, while the opposite edge of the plate is provided with a series of spike-apertures 3, disposed along the inner edge of the guard, and intermediate thereof are the apertures 2<sup>a</sup>. The location of said apertures is so determined that the guard and main rails will be separated a proper distance when the spikes in said apertures are driven home through the plate and into the usual supporting-ties beneath.

In order to hold the guard-rail against approaching the main rail after the former has been adjusted, I provide the guard-blocks 4 5, which are so formed that their inner ends will snugly fit between the body proper, 6, of the guard-rail, while the outer ends of said blocks will extend to or slightly past the middle section of the curved end sections 7 of said guard.

By locking the guard-blocks 4 5 in the throat of the opening between the guard and main



rails an effective closure is provided therefor, preventing the entrance of the foot of the person passing and thereby guarding against casualties that so frequently arise in the absence of said blocks. As an additional means for holding the base-plate 1 in position upon the ties, I provide a series of recesses 8 on the inner and outer edges thereof adapted to seat a spike of special construction. By thus mounting the guard and main rails upon a rigid base or support they are positively held in an adjusted position against lateral movement.

In order to provide for a more intimate and permanent union between the guard-rail and the base-plate, I prefer to effect such union by means of a series of rivets entered through the base of the guard-rail into suitable apertures provided in the base-plate. The apertures thus formed will receive the rivets and admit of their ends being upset or headed in the usual manner. My object in thus permanently connecting the guard-rail to the base-plate is to enable them to be readily taken up and removed when desired and also to guard against undue mutilation and wear of the ties arising from the use of spikes. It is well known in practice that the main rail will deteriorate and become useless while the guard-rail will yet remain perfect, the latter having the capacity of remaining in good condition even after the contiguous section of the main track has been many times renewed. The construction above provided for the guard-rail and base-plate permits the opposing section of the main rail to be removed and replaced without the necessity of disturbing any part except the spikes holding the main rail in position.

If desired, the union between the guard-rail and the base-plate may be reinforced by a series of spikes along the outer edge of the base of said rail, though it is thought that such reinforcement will be found wholly unnecessary. A series of spike-apertures 2<sup>a</sup> is also provided along the inner edge of the base of the main rail, providing that said rail may be held securely in position.

While I prefer to form a perfect union between the guard-rail and base-plate, as above set forth, yet it will be understood that when preferred said guard-rail may be held in position by means of a series of spikes, the apertures for which are illustrated in Fig. 1.

In order to reinforce the retaining-spikes in the apertures 2, 2<sup>a</sup>, and 3, (in case the riveted connection of the guard-rail and base-plate is dispensed with,) I provide the locking-bolts 9, which are preferably two in number for each of the guard-blocks, and are so disposed that they will extend from the main and guard rails through the block when the latter is seated in its operative place.

A simple calculation will so determine the location of the apertures formed in the blocks and contiguous rails that they will register with each other, and thus provide for the re-

ception of the locking-bolts 9. I prefer to form said blocks of metal, as a more permanent and reliable character will be given thereto than if formed of wood in the usual manner.

It is the common practice to secure the main and guard rails directly to the cross-ties, and as the strain upon the guard-rail is very great the spikes holding it in position are withdrawn or loosened, necessitating the frequent replacement and readjustment thereof, resulting in the rapid destruction of that section of the cross-tie, while by the use of my invention the retaining-plate 1, being secured in its operative position, is very reliably held and the strain and wear otherwise imparted directly to the ties are taken up and received by said plate. Owing to the permanent character of its material the plate is able to withstand severe and long-continued usage.

As an additional means for providing that the rails and the base-plate may be held in their operative combination, if deemed necessary, I provide in the face of said plate a series of longitudinally-disposed grooves or corrugations, while in the contacting faces of the bottom of the rails I provide corrugations which will coincide with those upon the plate, as illustrated in Fig. 4 of the drawings. In order to prevent a lateral movement of the rails when mounted upon a base constructed as above described, I prefer to so form said corrugations that they will have a series of alternate, vertical, and inclined walls, the inclination of the latter being toward the edges of the plate, and it will be readily understood that if the faces of the rails are adapted to fit such form of corrugations they will be further reinforced against spreading or lateral movement. It will be further understood that I do not wish to be confined to this form of construction, as it is thought that in practice a base provided with a smooth or plane surface will answer every requirement. I desire, however, to secure the right to use either form of construction I may deem most fit and proper in practice.

Having thus fully set forth the advantages, construction, and operation of my invention, further description will be dispensed with.

What I claim, and desire to secure by Letters Patent, is—

The combination with the main and guard rails of guard-blocks interposed between them; means for holding said blocks and rails in position; a base-plate provided with a series of longitudinal grooves adapted to receive the correspondingly-formed faces of the rails, substantially as described and for the purpose set forth.

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

JOHN L. BRADY.

Witnesses:

A. MASDEN,  
P. MURRY.