

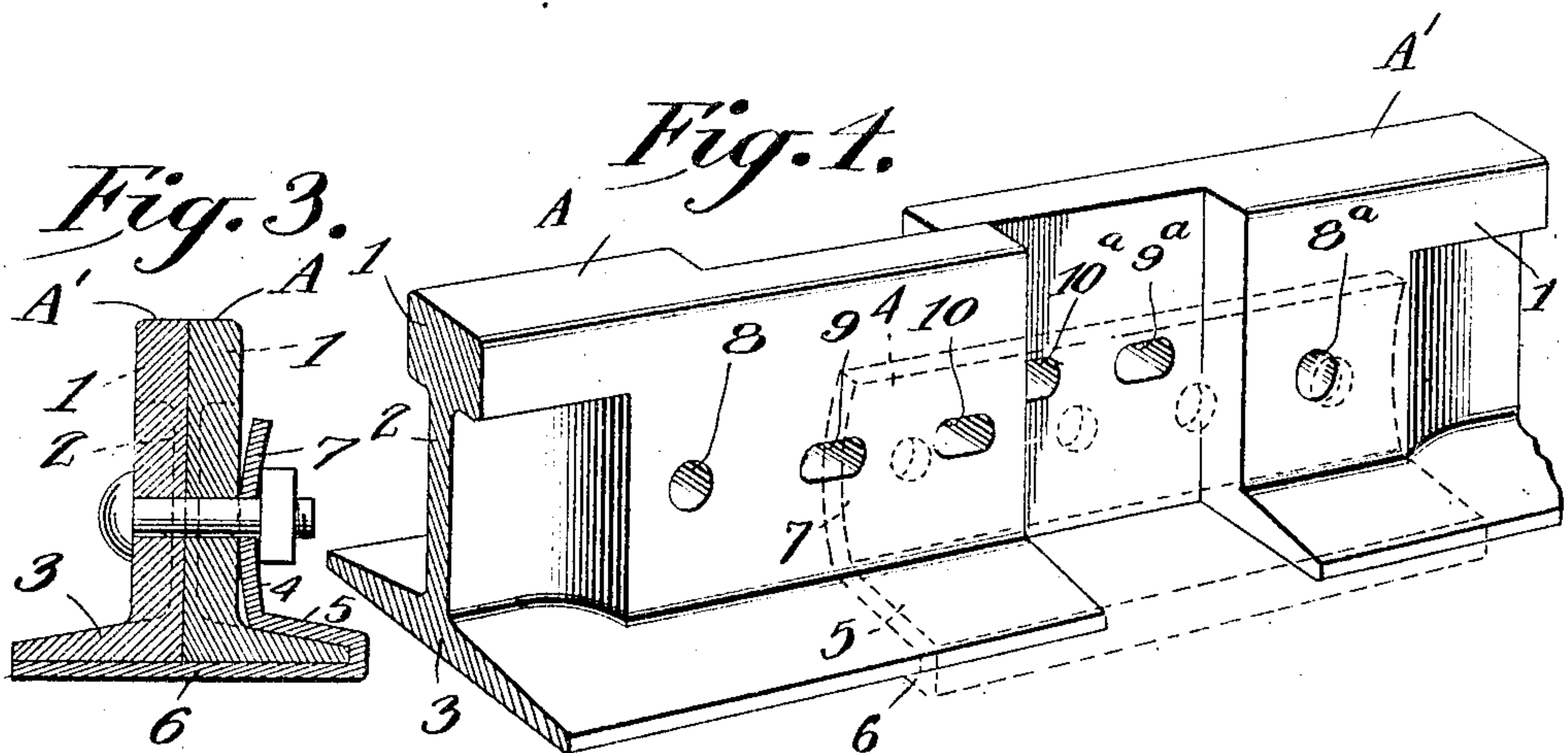
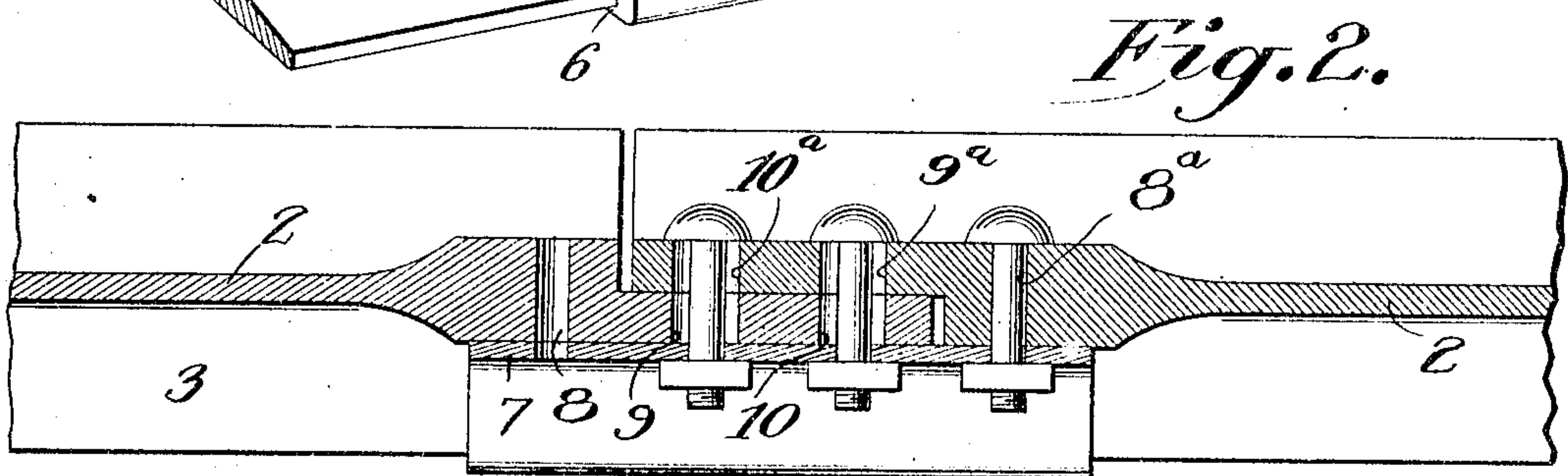
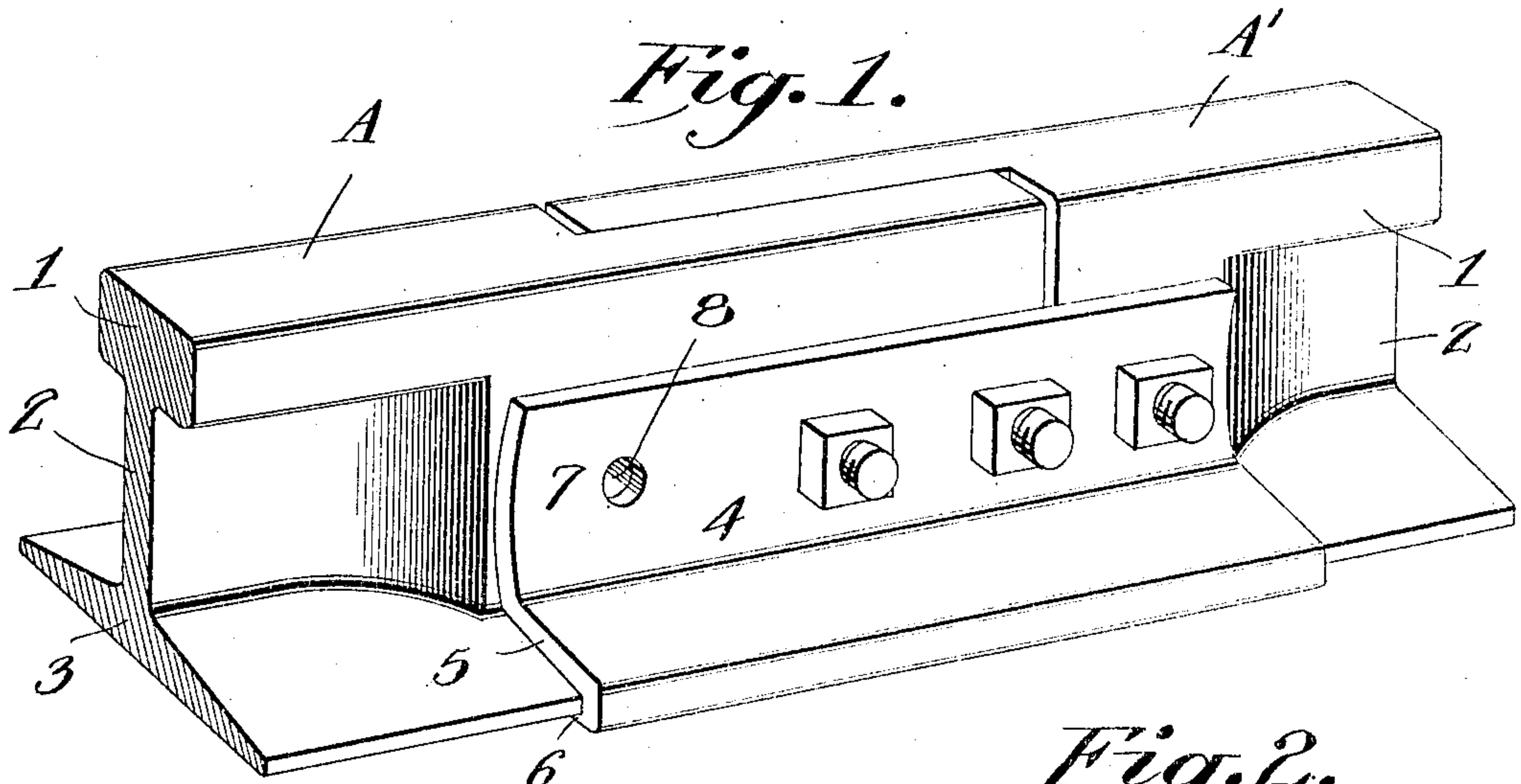
J. L. McCLINTOCK.

RAIL JOINT.

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925,939.

Patented June 22, 1909.



Witnesses

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RAIL-JOINT.

No. 925,939.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES L. McCLINTOCK, a citizen of the United States, residing at Clearwater, in the county of Sedgwick and State of Kansas, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to improvements in rail joints and more particularly to a scarf joint to be used in connecting iron and steel rails in railways.

The object of this invention is to provide a joint of extreme simplicity which will allow for the expansion and contraction of the rails caused by the different conditions of temperature, and yet at the same time produce a joint of maximum rigidity.

The advantages of this invention are that all parts of the joint are interchangeable and the extreme simplicity and small number of parts allow a very rapid assembly and great ease in completing the joint under all conditions no matter on which side of the track the rail is to be laid and the joint in either case is completed in the same manner. The fish-plate used in this joint is so constructed as to act both as a nut lock and a chair in addition to its regular function. In rails joined in accordance with this invention absolutely no binding occurs to prevent the expansion and contraction of the rails. To form this joint requires but four parts in addition to the two rails.

Heretofore it has been customary to construct scarf joints which are secured by passing bolts directly through the narrow projection or reduced portions of the rails, or by using a fish-plate overlapping the joint and secured by passing additional bolts through the web of each rail on each side of the joint. In both of these cases it has been practically demonstrated that the rails will bind and as there is no play at the joint the rails will either buckle or pull apart when affected by changes in temperature. A rail joint should allow for this expansion and contraction and it is accomplished by this invention.

While this invention is illustrated in the preferred form in the accompanying drawing it is to be understood that minor detail changes may be made without departing from the scope of the invention.

Figure 1 is a perspective view showing a complete joint as contemplated in this invention. Fig. 2 is a longitudinal section

taken on the horizontal plan, passing through the bolts. Fig. 3 is a vertical section through the center of the joint. Fig. 4 is a perspective view showing the rails detached, and the fish-plate in dotted lines.

A and A' designate two rails to be joined in the manner contemplated by this invention.

1 is the top or ball of the rail, 2 the web and 3 the base flange. At each end of the rail the web is increased in thickness on both sides to the same degree as the ball 1. The end of each rail is then cut away perpendicularly to and including the base and ball to the center line thereof. These cuts being oppositely disposed at each end of the rail, the abutting ends of any two rails will always engage each other to form a joint of uniform thickness. The fish-plate 4 is constructed to form also a chair for the joint by curving the lower portion 5 to correspond with the base flange 3, and then forming an integral plate 6 beneath the base flange upon which the joint rests. The portion 7 forming the fish-plate proper is curved outwardly at the top and bottom presenting a convex surface at the engagement with the thickened web of the rails. Each rail is provided with a series of three apertures or holes for the reception of the bolts. The holes 8 and 8^a are equidistant from the end of the rail, and are of such a size as to snugly receive the bolt. The apertures 9 and 10 are in the same relative position as the apertures 9^a and 10^a, and are in the form of oblong slots so that when two ends are placed together the aperture 9 will correspond with 10^a and 10 with 9^a, as the centers of the series of each rail are in line and the same distance from the bottom of the base flange 3.

In making this joint two rails are placed together and the equal cut away portions will cause the extensions to overlap each other. The fish-plate 4 is then placed on one side of the rail. The portion 6 of the fish-plate acting as a chair and the convex portion 7 engaging the web at the center line of the apertures. This portion of the fish-plate is provided with four circular bolt holes whose centers coincide with the centers of the apertures 8, 9, 10 and 8^a. The fish-plate is secured to the rails by three bolts passing therethrough having their heads on the side opposite the fish-plate. The fish-plate is rigidly secured to but one rail and this is accomplished by passing a bolt

through the circular aperture farthest from the end of the rail and in order that the fish-plate may act as an extension on this rail to slidably engage the other rail, it is necessary that this fixed bolt should be passed through from the side opposite the cut away portion of the rail. Bolts are then passed through the corresponding elongated apertures and all of the bolts are secured by nuts. By this construction the fish-plate is always rigidly secured to but one rail and the elongated corresponding apertures allow for the expansion and contraction without any binding at the joint. When the nuts are set up tight against the curved portion of the fish-plate they will be held firmly in that position, as the curve in the plate will act as a lock to prevent their being jarred loose by the vibration caused by trains passing over the joint. It will therefore be seen that by this means a compact and simple joint of great strength and durability is produced at a very small cost and with but slight alteration to the railroad rail of commerce.

The simplicity of this construction and the ease by which it may be applied are the essential features of this invention. The parts all being interchangeable there is never any difficulty encountered, such as the case where the joint is of such construction that only a certain end of the rail can be properly engaged with the next rail. Furthermore by providing the third hole on each rail farthest from the end, and the four corresponding holes in the fish-plate, the fish-plate may be applied to either side of the joint, and as it is preferable that the fish-plate should always be applied to the outer side of the joint this may be done irrespective of the manner in which the ends are overlapped.

I having described my invention I claim:—

1. A scarf joint for railroad rails comprising rails having oppositely disposed cut away portions at each end thereof adapted to break joints to form in effect a continuous rail, the rail being provided at each end with three similarly disposed bolt receiving apertures, the two nearest the end being in the reduced portion of the rail and in the form

of horizontal slots, the third aperture being in the rail proper and adapted to snugly receive the bolt, a combined fish-plate and chair extending beyond each end of the joint having a curved portion adapted to engage the webs and presenting a convex surface thereto, having a series of circular bolt receiving apertures corresponding in location to the four apertures on the sides of the adjacent rails, said fish-plate being secured by three bolts passed through from the opposite side, the concave portion forming a nut lock therefor, the fish-plate being rigidly secured on the side of the cut away portion of one rail and slidably engaging the other rail by the bolts passing through the elongated slots in the reduced portions of both rails.

2. A scarf joint for railroad rails comprising interchangeable rails provided with oppositely disposed cut away portions at each end and a combined fish-plate and chair adapted to secure and support the abutting rails, said fish-plate being rigidly secured to but one rail and allowing a limited movement of the other rail between the reduced portion of the first rail and the fish-plate.

3. A scarf joint for railroad rails comprising rails provided with oppositely disposed corresponding cut away portions at the ends thereof, and a combined fish-plate and chair adapted to be applied either side of the joint, means to secure the fish-plate in either position to rigidly engage one rail on the side of its cut away portion and means to slidably engage the other rail between the first rail and fish-plate.

4. In a scarf joint for railroad rails comprising rails adapted to break joints with each other, an outwardly curved fish-plate presenting a convex surface adapted to engage the rails throughout the length of the plate, bolts passed through the rails and fish-plate in the line of contact and nuts on the bolts engaging the concave surface of the fish-plate and locked in position thereby.

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Witnesses:

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