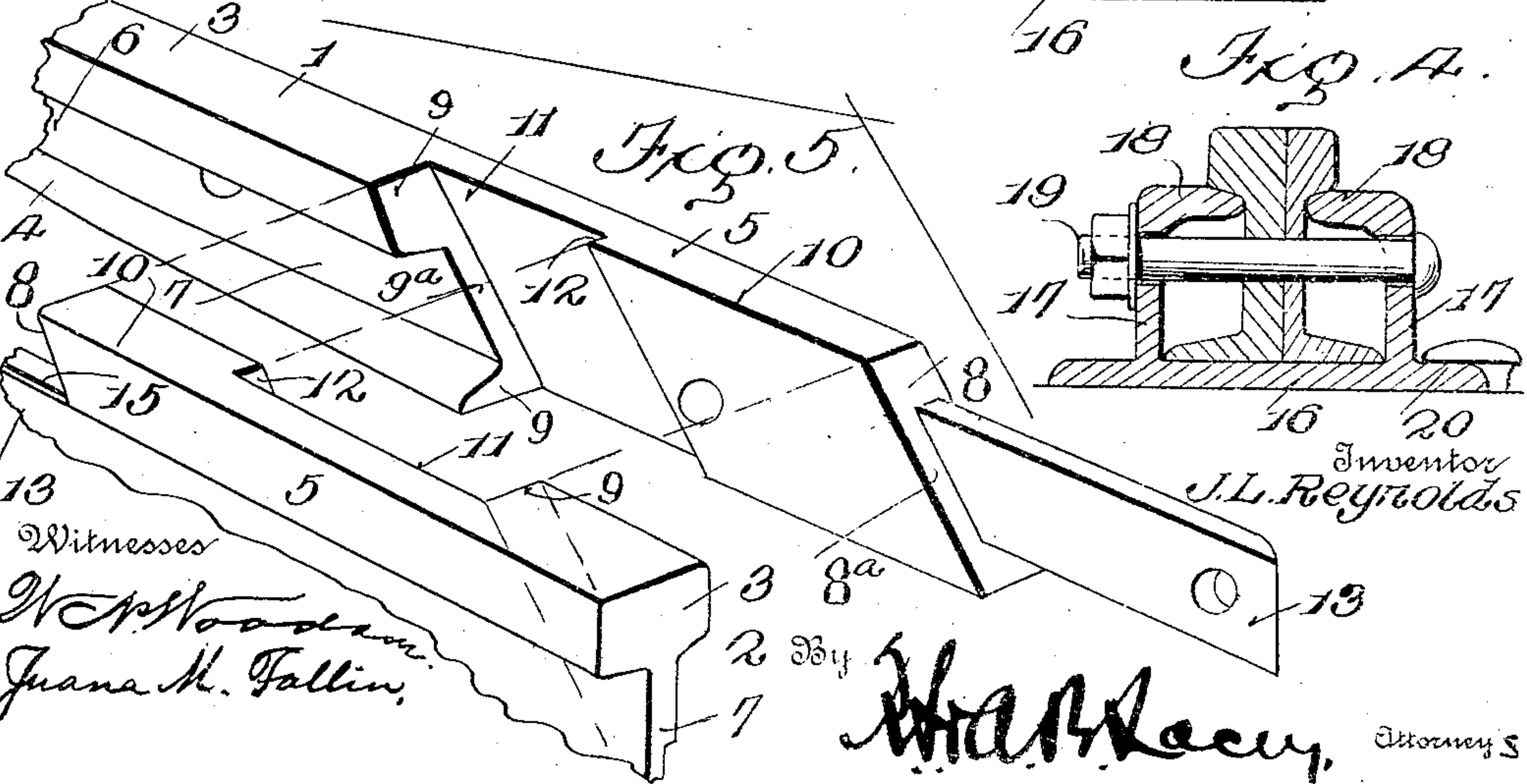
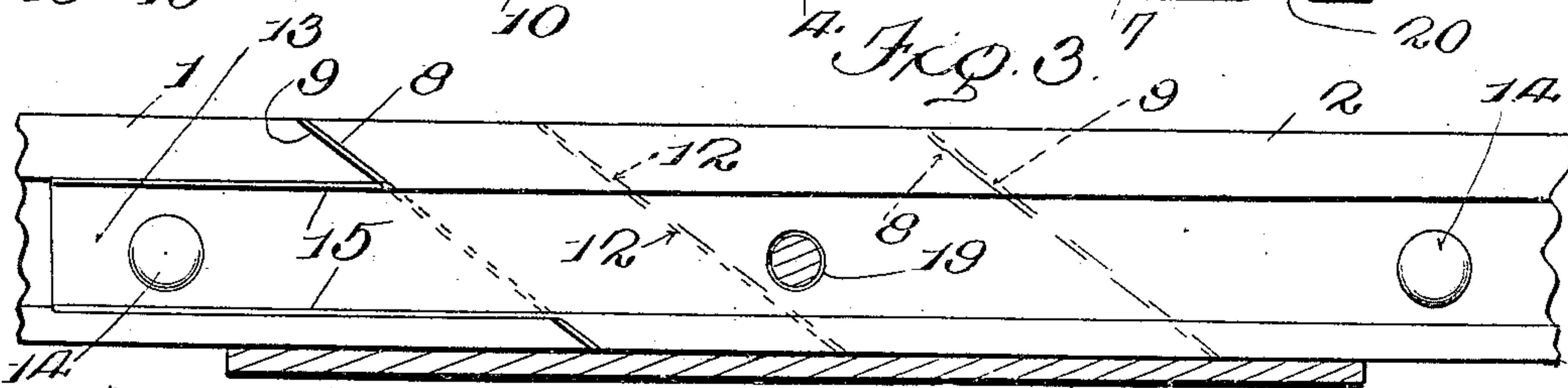
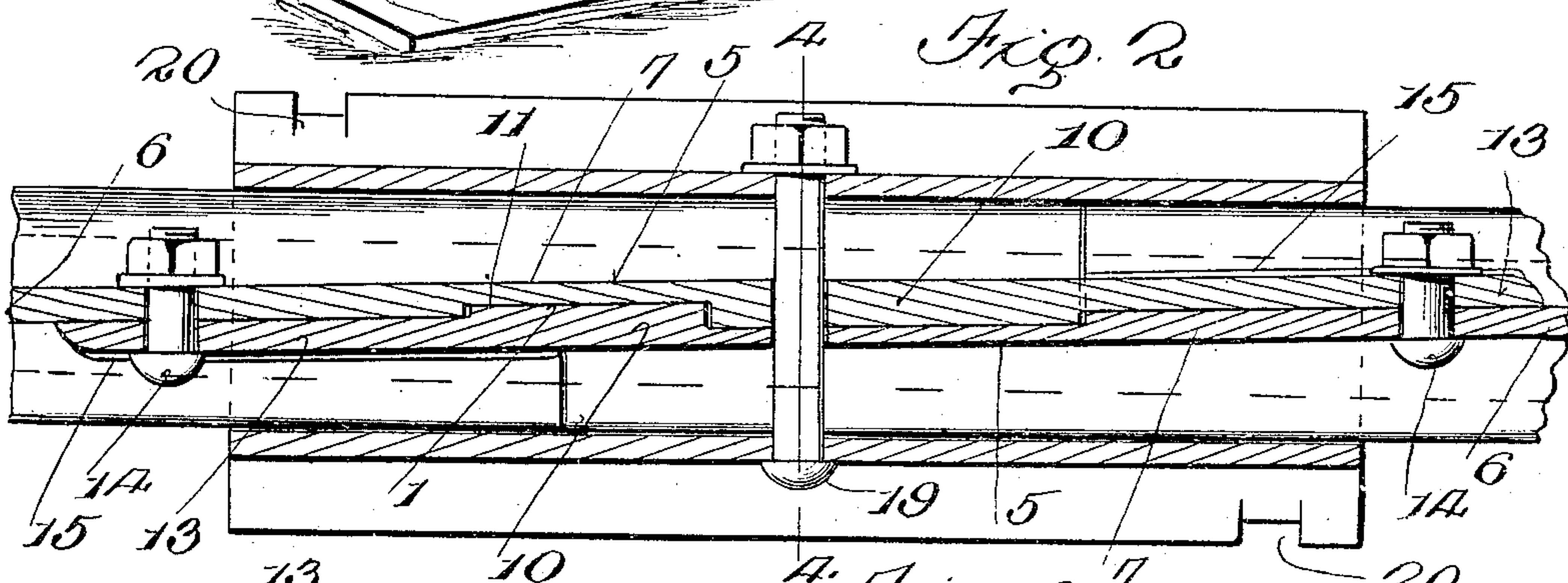
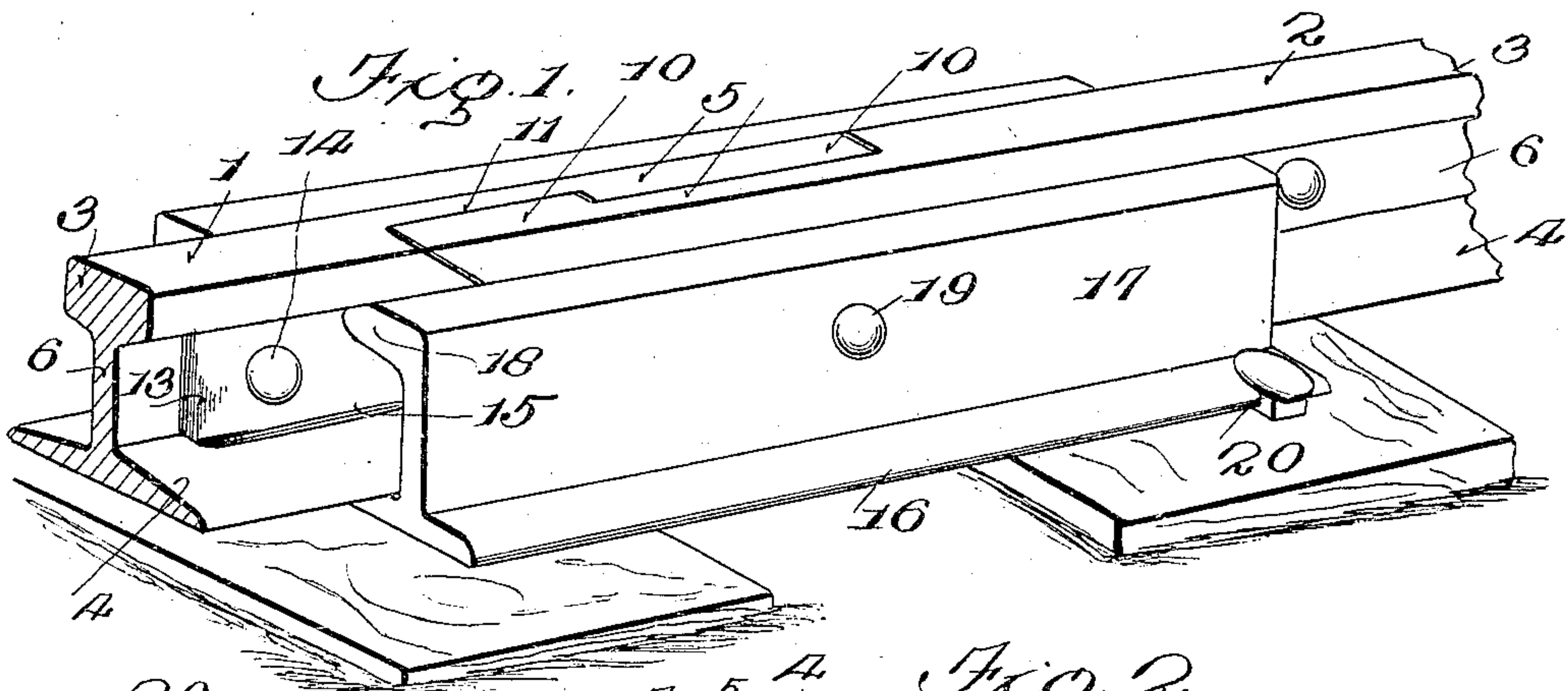


J. L. REYNOLDS.  
RAIL JOINT.  
APPLICATION FILED OCT. 21, 1909.

966,052.

Patented Aug. 2, 1910.





# UNITED STATES PATENT OFFICE.

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## RAIL-JOINT.

966,052.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed October 21, 1909. Serial No. 523,858.

*To all whom it may concern:*

Be it known that I, JOHN L. REYNOLDS, citizen of the United States, residing at Santa Fe, in the county of Santa Fe and Territory of New Mexico, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

The present invention comprehends certain new and useful improvements in rail joints, and the invention has for its object a particularly efficient device of this character which embodies a peculiar interlocking connection between the meeting ends of the rails whereby to prevent the joint from sagging under excessive downward pressure and to materially increase the strength and rigidity of the track at this point.

With this and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and then point out the novel features of in the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view of a rail joint constructed in accordance with my invention; Fig. 2 is a horizontal sectional view thereof; Fig. 3 is a side elevation, the rail chair being in section; Fig. 4 is a transverse section on the line 4—4 of Fig. 2; and, Fig. 5 is a detail perspective view showing the meeting ends of the rail in juxtaposition.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

In carrying out my invention, I employ the rails 1 and 2 which are placed end to end with their heads 3 and base flanges 4 in longitudinal alinement. The meeting ends of the rails are correspondingly recessed or cut away vertically on opposite sides, so as to provide longitudinally projecting tongues 5 arranged to lap to form a scarf joint, as best seen in Fig. 1. In the present instance the webs 6 of the rails are gradually deflected oppositely and laterally at said meeting ends, as shown at 7, in order to be of

substantially full thickness in the tongues to reinforce the same, and to be adapted to lap each other without being cut away, thus affording a stronger joint. The ends of the tongues provide shoulders 8 which abut against the shoulders 9 formed at the ends of the recesses, all of said shoulders facing longitudinally toward the joint. The shoulders 8 and 9 of the rail 2 are undercut, while the shoulders of the outer rail are suitably inclined to fit under and support said undercut shoulders. The tongues are formed in their inner or meeting faces in proximity to their ends with inclined ribs or projections 10 which interlock with correspondingly formed matching grooves 11 to hold the rails against spreading apart longitudinally. The grooves are somewhat wider than the ribs in order to afford the latter slight play therein to compensate for the expansion and contraction of the rails. The edges of the various ribs and grooves are square, and the remote edges of the rib and groove of each rail constitute shoulders that are flush with the shoulders 8 and 9 respectively. The adjacent edges of the rib and groove of each rail are flush with each other and provide an intermediate shoulder 12, which faces away from the joint, that is, in the direction of the length of the rail. The intermediate shoulder of the rail 2 is suitably inclined to fit under and support the intermediate shoulder of the rail 1 which is undercut, as best seen in Fig. 5.

Attention is here directed to the fact that by virtue of the coöperative relation between the shoulders of the rails, the latter are prevented from sagging at the joint when subjected to excessive downward pressure, while the tread surfaces of the rails are maintained in the same horizontal plane whereby to reduce the vibration and noise to a minimum when the wheels of the rolling stock pass over the joint.

The deflected web portions 7 are extended longitudinally beyond the ends of the tongues 5 to form side plates 13 which lie against the adjacent faces of the webs of the opposite rails and are secured thereto near their ends by means of bolts 14, or other suitable fastening devices. The said side plates are formed at their upper and lower edges with outstanding longitudinal flanges 15 which fit snugly against the heads and base flanges of the rails to brace the same



where they are of increased width on account of the lateral deflection of the webs.

In practice it is contemplated to support the meeting ends of the rails in a chair, 5 which embodies a base plate 16 of any suitable length. Opposed cheeks 17 upstand from the base plate on opposite sides of the rails and are turned inwardly along their upper edges, as indicated at 18, to underlap 10 the heads of the rails and bear against the outer faces of the deflected web portions 7. The rails are maintained against any longitudinal creeping movement with respect to the chair through the medium of one or 15 more bolts 19 passed through the cheeks 17 and the interposed rail ends. The base plate 16 extends laterally beyond the cheeks and in the present instance is formed with seats 20 adapted to accommodate the heads of spikes employed for fastening the chair to the tie or sleeper.

When assembling the parts of the joint, the rail chair is applied to one of the rails and is slipped longitudinally back from the 25 scarfed end thereof. Such scarfed end is then interlocked with the scarfed end of the other rail, after which the chair is moved longitudinally of the rails to assume an operative position wherein it spans the joint. 30 By applying the bolts 14 and 19 and fastening the chair to the tie, the operation is completed, it being noted that only a minimum expenditure of time and labor is required which manifestly enhances the value 35 of the invention.

It is to be understood that the chair may be of any suitable length in order to impart the necessary rigidity to the joint.

Having thus described the invention what 40 is claimed as new is:

1. In a rail joint, the combination of rails having their meeting ends recessed to provide shoulders and overlapping longitudinal tongues, the tongues terminating in 45 shoulders abutting against the shoulders provided by the recesses of the opposite rails, both shoulders of one of the rails being undercut and the shoulders of the other rail being inclined to fit under and support such 50 undercut shoulders.

2. In a rail joint, the combination of rails having their meeting ends recessed vertically on opposite sides to provide overlapping longitudinal tongues, the tongues being formed in their meeting faces with shoulders facing 55 longitudinally away from the joint and abutting against each other to hold the rails against longitudinal separation, one of said shoulders being undercut to face obliquely downwardly and the other shoulder being 60 inclined to face obliquely upwardly and fit under and support said undercut shoulder.

3. In a rail joint the combination of a rail having one end recessed to provide a longitudinal tongue, the recess and the end 65 of the tongue providing undercut shoulders, facing obliquely downwardly and a second rail having one end recessed to provide a longitudinal tongue overlapping the tongue of the first rail, the recess and the 70 end of the tongue of the second rail forming inclined shoulders facing obliquely upwardly fitting under and supporting the undercut shoulders of the first rail, the tongues being 75 formed in their meeting faces with intermediate shoulders, the intermediate shoulder of the second rail being undercut to face obliquely downwardly and the intermediate shoulder of the first rail being inclined to face obliquely upwardly and fit under and 80 support said undercut intermediate shoulder.

4. In a rail joint, the combination of rails having meeting ends recessed to provide overlapping longitudinal tongues, the tongues being formed in their meeting faces 85 with inclined ribs and grooves interlocking to maintain the rails against longitudinal separation, the said inclined ribs and grooves providing undercut shoulders facing obliquely downwardly and inclined should- 90 ders facing obliquely upwardly and fitting under and supporting the undercut shoulders.

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

JOHN L. REYNOLDS. [L. s.]

Witnesses:

J. N. BROYLES,  
C. A. TINGUELY.