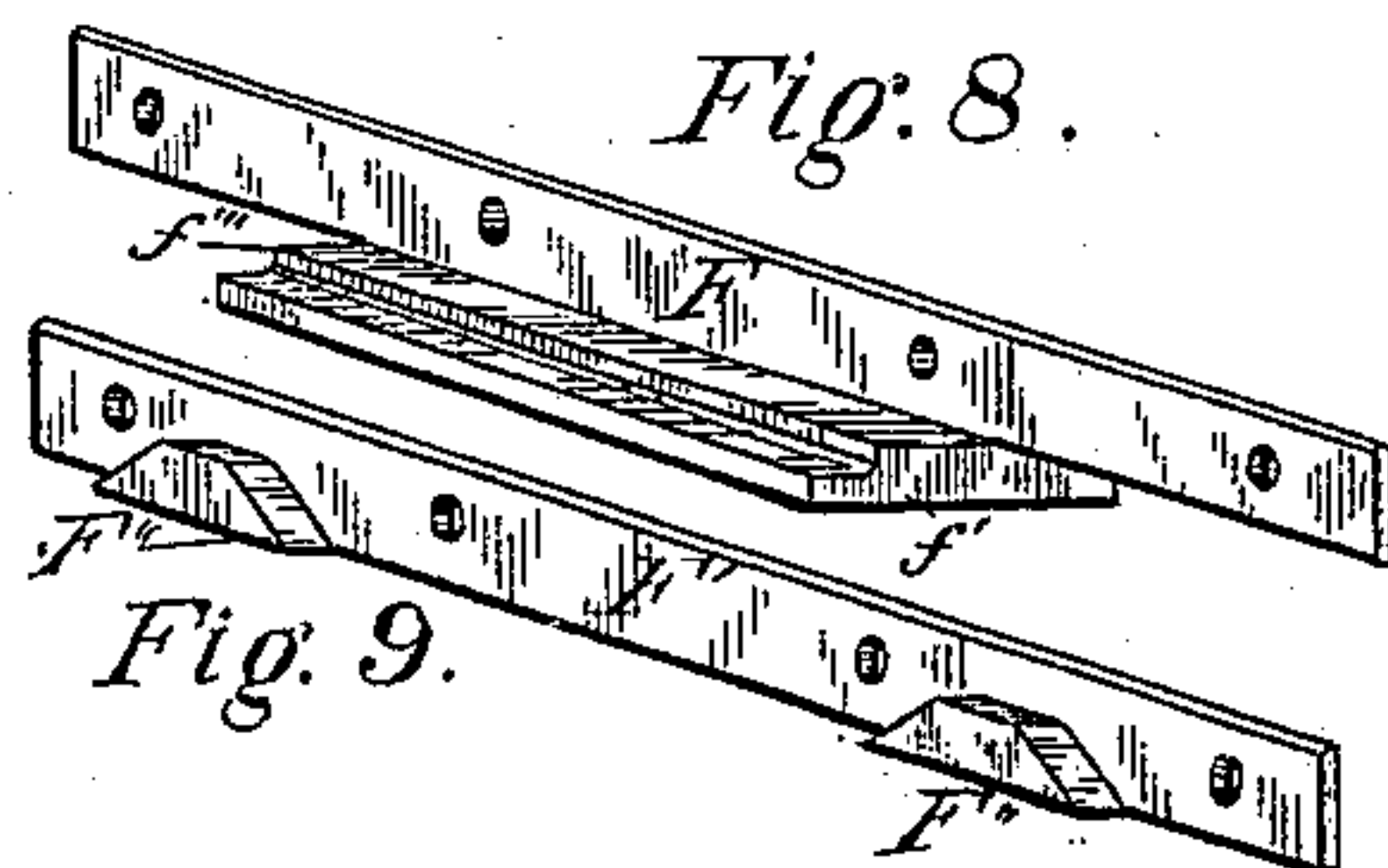
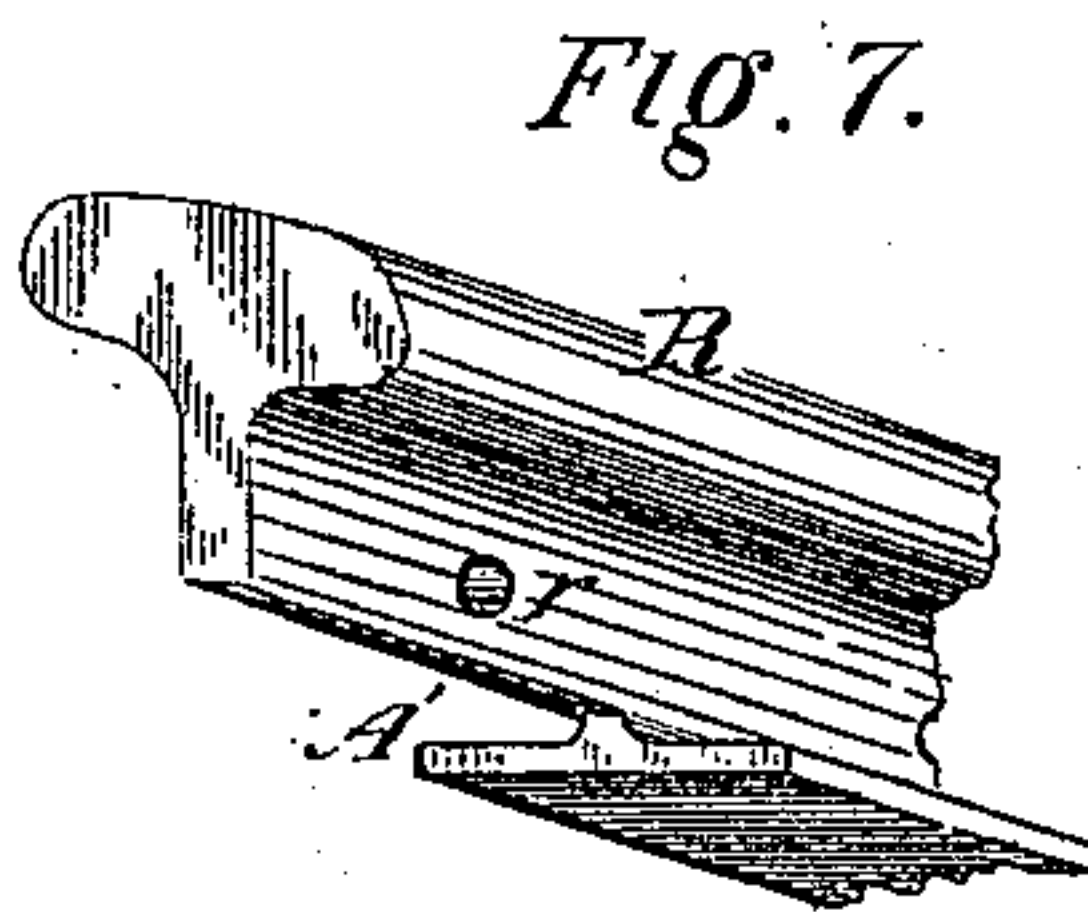
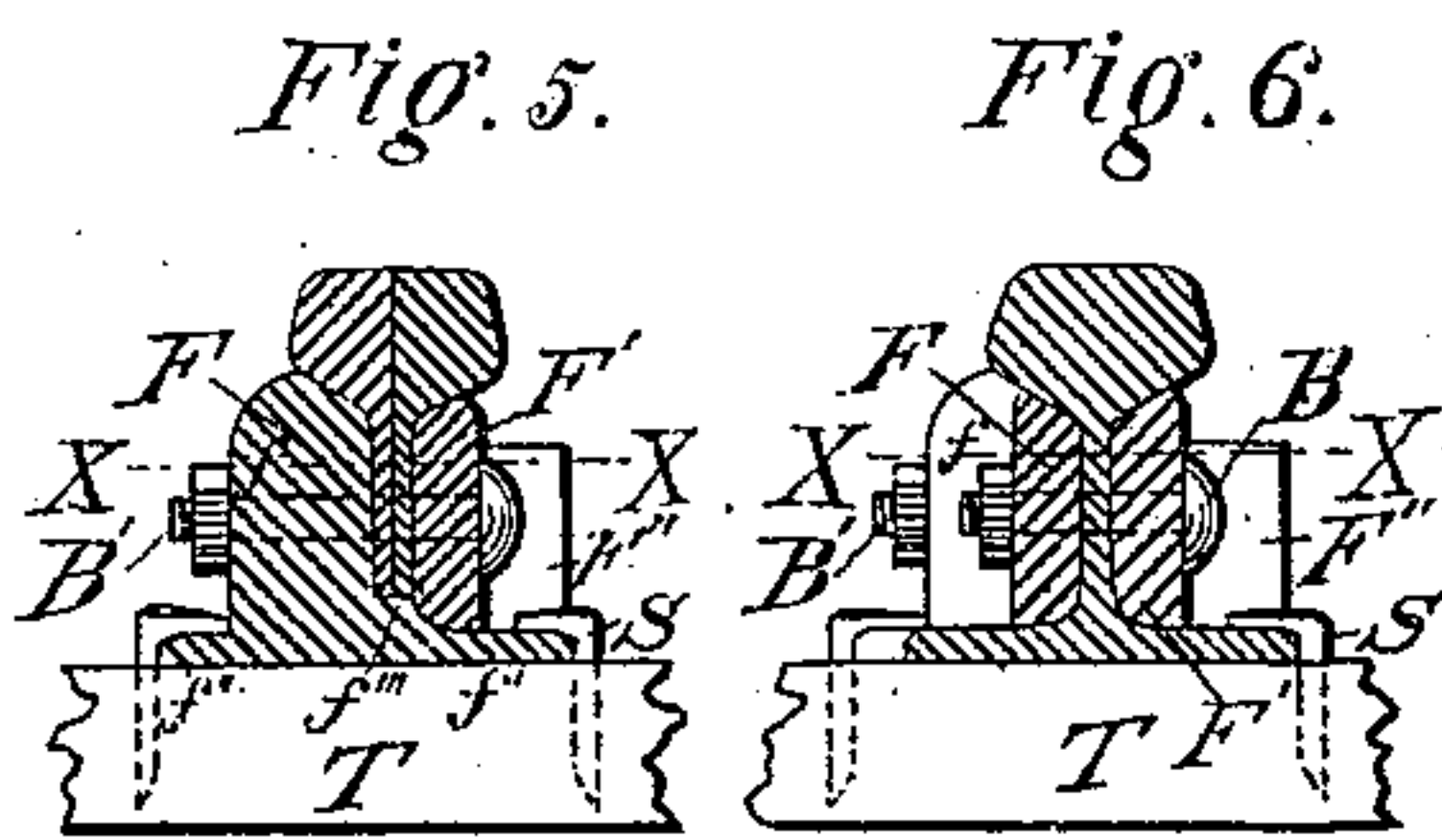
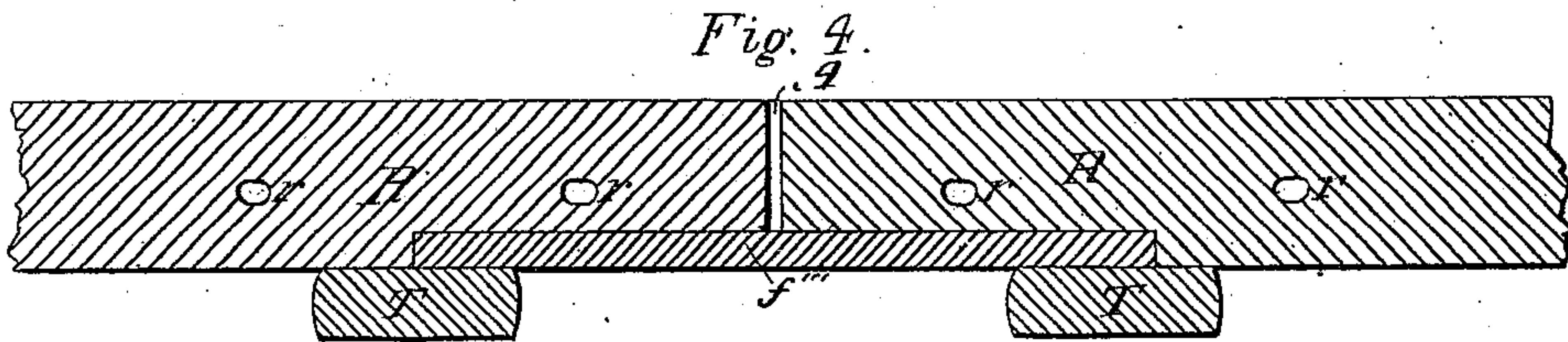
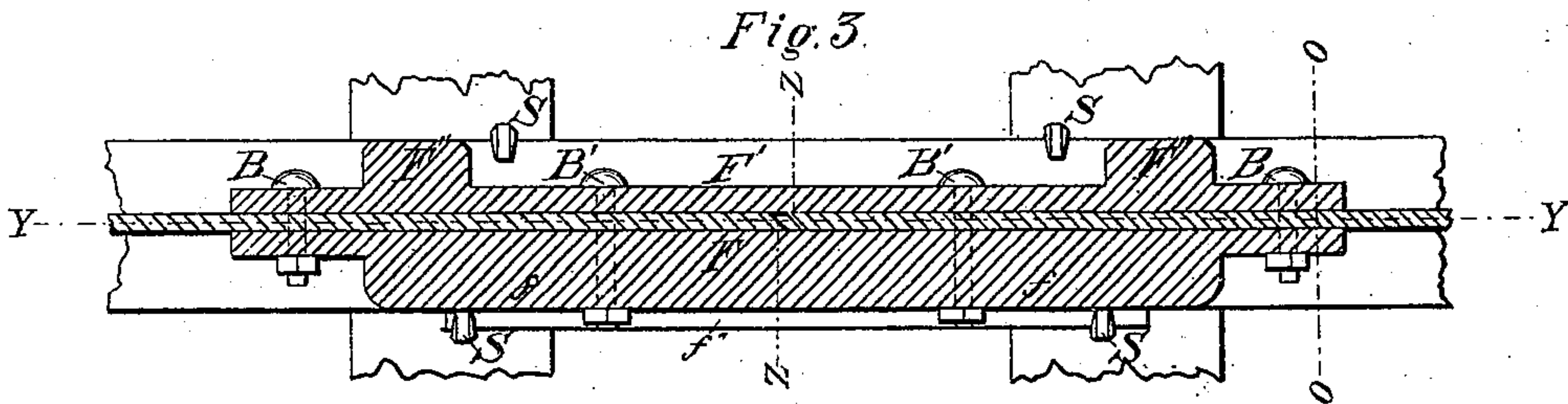
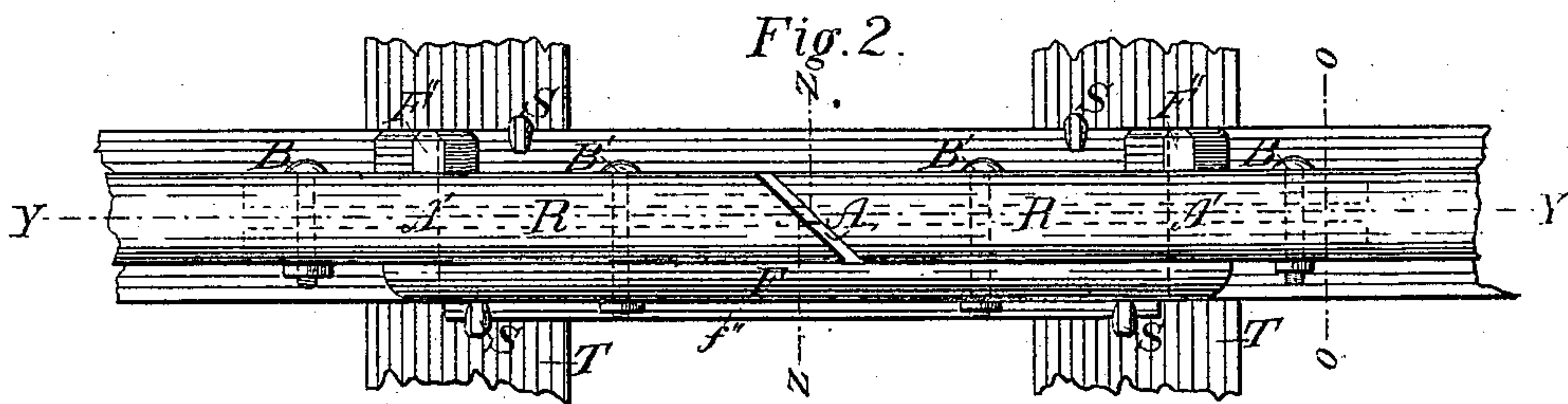
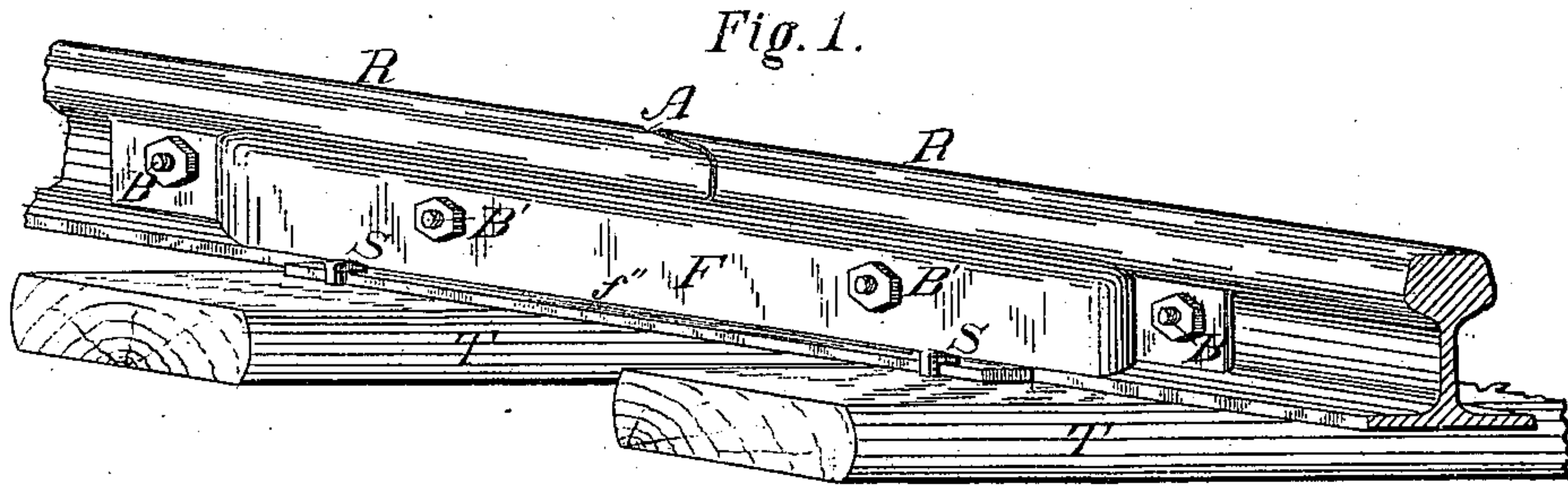


(No Model.)

J. SIEGEL.
RAILWAY RAIL JOINT.

No. 355,725.

Patented Jan. 11, 1887.



Witnesses.

Chas. Raley.
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UNITED STATES PATENT OFFICE.

JOHN SIEGEL, OF MONTREAL, QUEBEC, CANADA.

RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 355,725, dated January 11, 1887.

Application filed October 14, 1886. Serial No. 216,228. (No model.)

To all whom it may concern:

Be it known that I, JOHN SIEGEL, of the city of Montreal, in the Province of Quebec, Dominion of Canada, have invented new and useful Improvements in Railway-Rail Joints, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to the manner of joining and connecting railway-rails.

The objects of my invention are to provide a more continuous bearing for the wheel-tires, and thereby increase the life of the rails by reducing the wear at the joint, where, it is well known, rails do give way first; to increase the life of the wheel-tires by avoiding the shock occasioned each time a tire is passing over an open joint of ordinary construction; further, to reduce the liability to accident from derailment owing to a want of room between the ends of rails for expansion; to increase the comfort in traveling by avoiding the succession of slight shocks occasioned by the passing of the tires over open joints; to reduce frequency and cost of repairs to the permanent way, and to provide these advantages without material extra cost over ordinary joints.

My invention consists, mainly, of a joint formed by cutting the end of each rail bevel or oblique at the head and web, and to remove a piece of the foot, severing it from the web and leaving the end square, so that the head and web project beyond the foot, leaving a gap in the continuity of the foot when two ends are joined, said gap being filled by a foot corresponding to the rail-foot formed integrally on one of the fish-plates, the latter being bolted together through the rails in the usual manner and spiked to the tie or ties.

Figure 1 is a perspective view of a joint constructed in accordance with my invention. Fig. 2 is a top view of the same. Fig. 3 is a horizontal section on line xx , Figs. 5 and 6. Fig. 4 is a longitudinal vertical section on line yy , Figs. 2 and 3. Fig. 5 is a cross-section on line zz , Figs. 2 and 3, being through the center of the joint. Fig. 6 is a cross-section on line oo , Figs. 2 and 3, showing the ordinary rail and fish-plate section. Fig. 7 is a perspective view of a rail end. Figs. 8 and 9 are perspective views of the fish-plates.

$R R$ are two adjacent rail ends, having their

heads and webs cut and joined at an angle of forty-five degrees, forming the oblique joint A , overlapping laterally. The foot is cut square on the line A' a short distance back of the heel of the head and web, being severed from the web parallel at the line where the web begins to thicken out into the foot. Elongated bolt-holes $r r$ are, as usual, provided in the rail ends and at the usual distance apart.

$F F'$ are the fish-plates, extending the usual length along the web of each rail, and may be of any convenient cross-section, such as bears properly on the head and foot of the rail, a common form being shown in Fig. 6.

One of the fish-plates, F , has a foot, f' , formed integrally with it at a right angle on the inner side and corresponding in section and length to the two pieces of foot cut from the adjacent rail ends and adapted to project under and support the web and take the place of the portions cut away, a raised shoulder, f'' , being formed under the web by reducing the outer portion of the foot in thickness. The foot f is also extended to project on the other (outer) side of the fish-plate, forming a ledge or flange, f'' , affording convenient hold for the spike-heads S in securing them upon the ties T . The fish-plate is also given an extra thickness, f , for a length extending over and beyond the foot f'' , in order to obtain the required strength. The other fish-plate, F' , is provided with two projections, F'' , fitting snugly upon the rail-foot and in position to cover the two joints formed by the ends at the fish-plate foot f' and the rail-foot ends A' , room being left in these joints for expansion. The fish-plates are provided with bolt-holes in the usual manner, and bolted together through the rail-web by bolts $B B'$, the central ones being longer, owing to the increased thickness of the fish-plate.

The joint A may be of any convenient angle, the longer or more acute affording the smoothest running-surface for the tire, but may be objectionable as regards wear, on account of its sharp points or ends, which are weak, while a shorter or more obtuse angle must not be used than will effectually cover the open space left for expansion, so that a square (representing the tread of the tire) laid across the rail shall always be on one or more solid parts of the head, the angle of forty-

five degrees or half right angle appearing on these grounds the most practical.

The drawings show a suspended joint—*i. e.*, between two ties. My improved joint is, however, not necessarily restricted to such a form. It will also be obvious that a joint may be formed in this manner with the ends of the rails square instead of beveled.

It will be observed that all the extra weight in this joint consists of that contained in the extra thickness of one of the fish-plates and the projections on the other.

The advantages of this joint are that, owing to the obliquity and lateral overlap of the rail ends, the action of the tire upon them is smoother and less destructive, resulting in greater comfort in traveling and increased life of the rails and tires, while the space left for expansion, being made less objectionable by its obliquity, may be made more ample, and consequently more safe.

I claim as my invention—

1. A railway-rail joint formed by beveling the head and web of each rail end so as to overlap each other laterally and cutting off a piece of the rail-foot square, so as to undercut the web, the rail ends connected by two fish-plates, one having a foot corresponding to and replacing the piece cut from the foot of each rail, said foot extending on the outer side of the plate, and the latter having an extra thickness for a length extending over and beyond said foot, the other fish-plate provided with

projections to cover the joints in the rail-foot, said fish-plates bolted through the web of the rails in the usual manner, substantially as shown and described.

2. The combination of the rail ends R, the bevel-joint A, extending through head and web of the rails and causing them to overlap laterally the square back-set ends A' of the rails, the fish-plate F, extra thickness f , foot f' f'' , and shoulder f''' on said fish-plate, the fish-plate F', projections F'' thereon, and the bolts B and B', substantially as shown and described.

3. The combination of a fish-plate, F, foot f' f'' f''' , corresponding to the rail-foot, and swell f , substantially as shown and described.

4. The combination of the fish-plate F' and the projections F'', substantially as shown and described.

5. The combination of the fish-plate F', foot f' , rails R, and recesses formed by the shortening of the rail-foot, substantially as set forth.

6. The combination of the rails R, each having its foot shortened square, the fish-plate F', foot f' f'' , fish-plate F', projections F'', and bolts B B'.

Signed at Montreal, Province of Quebec, Dominion of Canada, this 7th day of October, A. D. 1886.

JOHN SIEGEL.

Witnesses:

J. CORBIN,
JOHN GRAY.