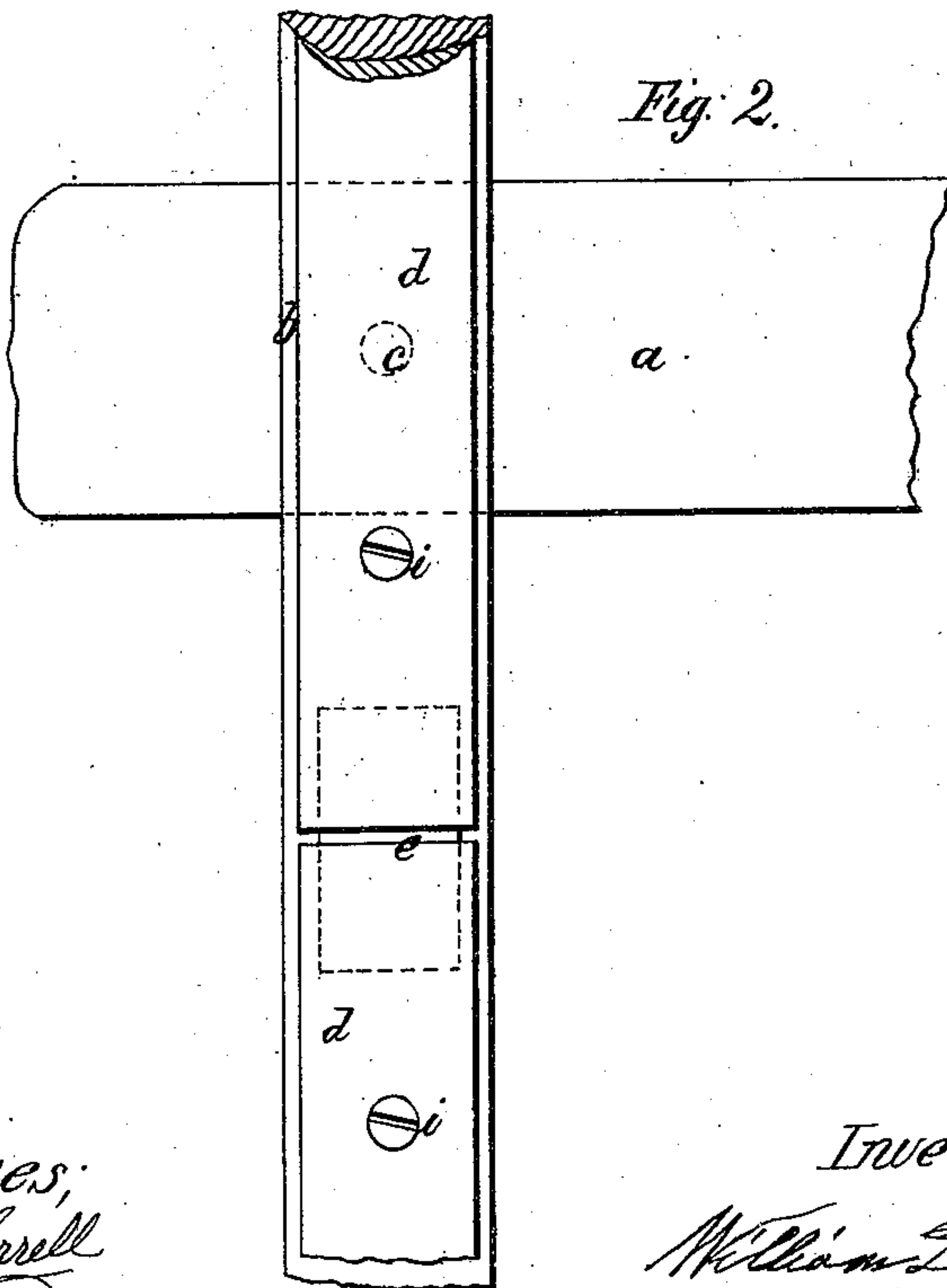
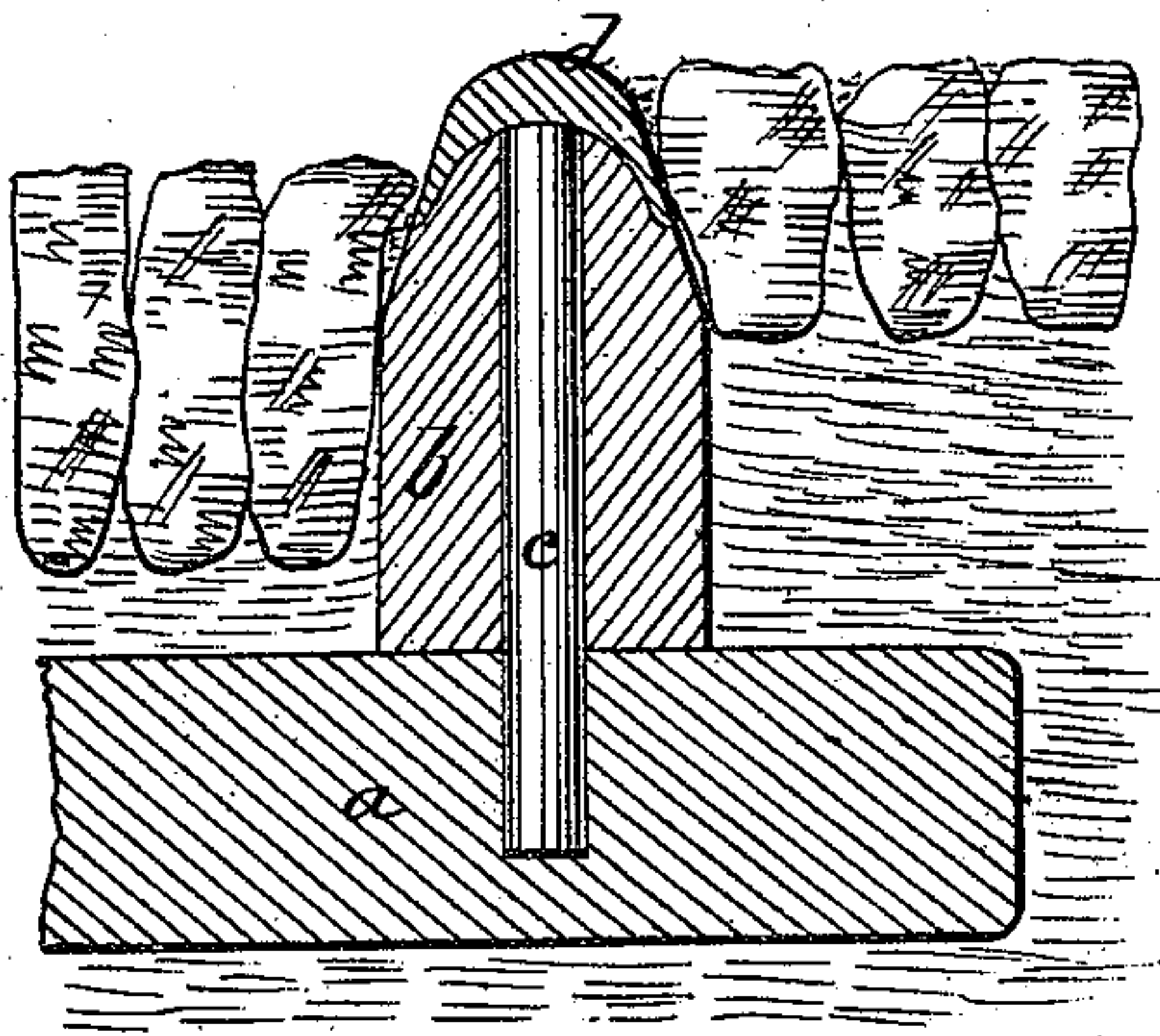
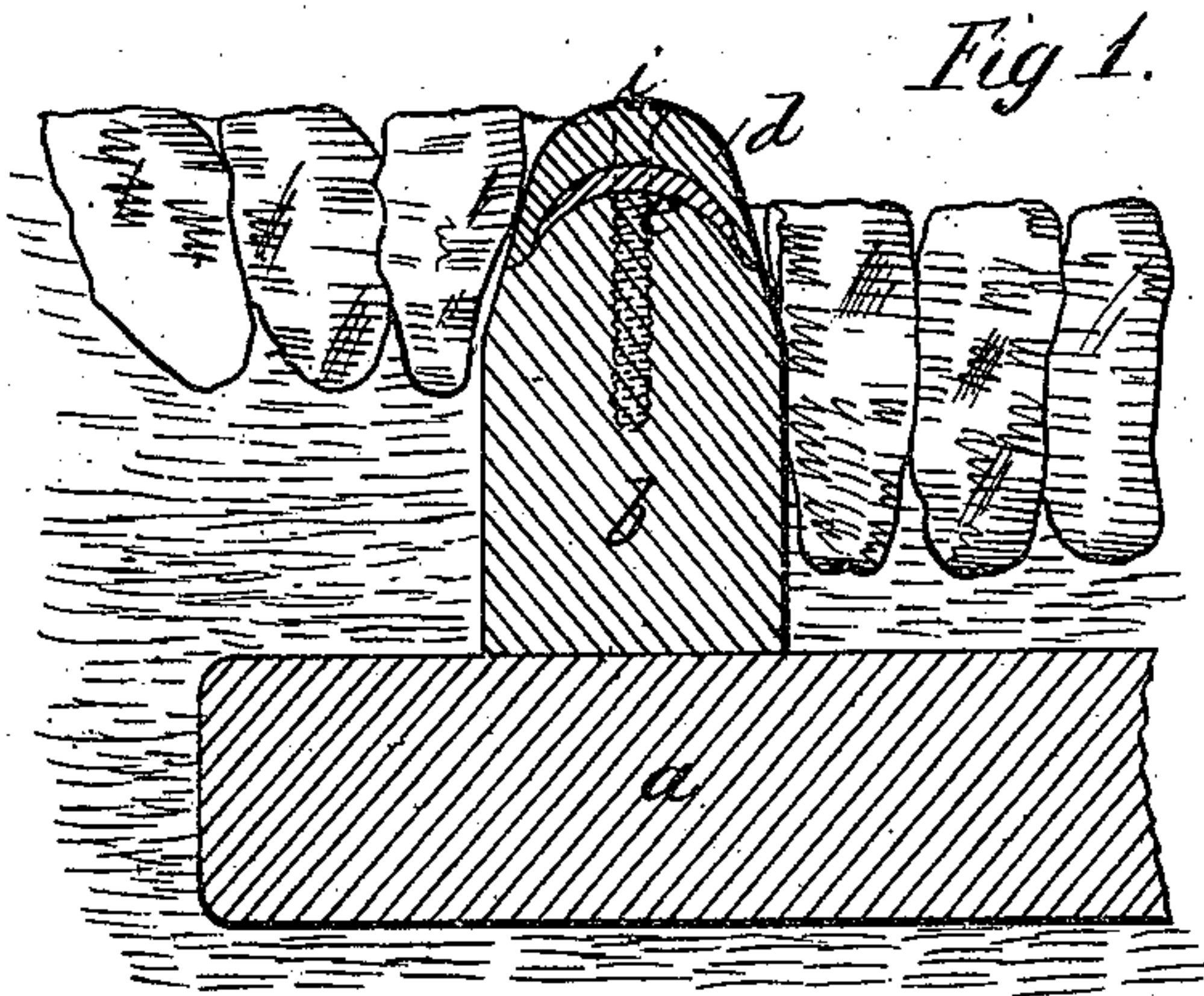


W. D. O'Brien.

Railroad Rail.

N^o 43,599.

Patented Jul. 19, 1864.



Witnesses;
Samuel H. Correll

Inventor;
William D. O'Brien

UNITED STATES PATENT OFFICE.

WILLIAM D. O'BRIEN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN RAILROAD-RAILS.

Specification forming part of Letters Patent No. 43,599, dated July 19, 1864.

To all whom it may concern:

Be it known that I, WILLIAM DESMOND O'BRIEN, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Tracks for City Railroads; and I do hereby declare that the following is a full, clear, and exact description of the nature and object of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1. is a cross-section of one track, and Fig. 2 is a plan of one of the rails.

Similar marks of reference indicate the same parts.

The tracks for city railroads heretofore laid are found practically defective in use, because the sills on which the tracks are laid rot out. This rotting takes place mostly at the joints between the rails. There are several causes tending to produce this result. In the first place the rails have usually been of a grooved form, and the water runs in these grooves, (when raining,) until it comes to a joint, where it passes down and soaks into the sills and earth. Sometimes the water will run between the sill and the rail for some distance, because the two are not closely in contact and the sill is flat at the top and sometimes slightly grooved. All this tends to expose the sill to alternate wet and dry, and hastens the rotting. In the next place, the spikes that hold the rails to the sill have usually been inserted diagonally, and a spike being near the end of each rail has tended to split and injure the wood near the joints, hastening rot.

My said invention consists of a crescent-shaped rail screwed onto the curved top of the sill, forming what I term the "economical roof-rail for city railroads," because the same forms an arched covering to the sill sufficiently strong for the wheels, but considerably lighter than other bars. At the same time the water is shed off from the sill, and the same kept as dry as possible, and the screws holding the rail down, entering directly from above, make a very durable connection, and, not being liable to motion, as a spike, the water does not pene-

trate the hole containing such screw, and rotting is prevented.

My said invention will be fully understood from the foregoing and a reference to the drawings, wherein *a* is a cross-tie, to which the sleeper *b* is connected by the dowel or tree-nail *c*. *d* is my improved roof-rail, formed in the shape shown, and weighing more or less per yard according to circumstances. *e* is a plate inserted into the upper surface of the sill, beneath the joints, to render the joint more rigid and durable; and *i i* are screws inserted through the upper surface of the rail into the sill below.

The paving-stones are to be laid as shown, so as to come up to the top of the rail at the outside and dropped down between the tracks to allow room for the flanges of the wheels.

It will now be evident that this manner of forming city or horse railroad tracks possesses great advantages over all others heretofore invented, because the sill is more effectually protected from rotting, and a much lighter rail can be used. I not only cover the upper surface of the sill with a rail that will prevent water lying on or soaking into said sill, but the screws *i* entirely fill up the holes bored in the iron and prevent water soaking in and rotting the sills.

In almost all horse-tracks hitherto laid the rails have been confined to the sills by square spikes driven obliquely through round holes in the iron, allowing water to penetrate from the first and run along the surface of the sill, and, as those spikes are often loosened and worked out by vehicles, the holes become conduits to admit the water at every shower into and along the surfaces of the sills, which speedily rots the same, while screws not only keep out the water, but never become loose, as practically tested by me in nine miles of city railroad track.

I do not claim a flat rail with vertical flanges; nor do I claim securing rails to sills by means of screw bolts and nuts; but I am not aware of any previous instance in which a crescent-shaped rail has formed a cap or roof for all the upper surface of the sills, and, being con-

cave on the under side, taking the convex surface of the sill, prevents the lodging of water, and consequent rotting; as set forth therefore—

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

1. The crescent-shaped rail forming a roof or cap to the sills, as and for the purposes specified.

2. Forming the under side of the joint-plate of city railroads concave to set onto the

convex surface of the wood prepared to receive said plate, for the purpose of preventing the lodging of water beneath the said joint-plate and the rotting consequent thereon, as set forth.

In witness whereof I have hereunto set my signature this 9th day of May, 1860.

WILLIAM D. O'BRIEN.

Witnesses:

LEMUEL W. SERRELL,
THOS. GEO. HAROLD.