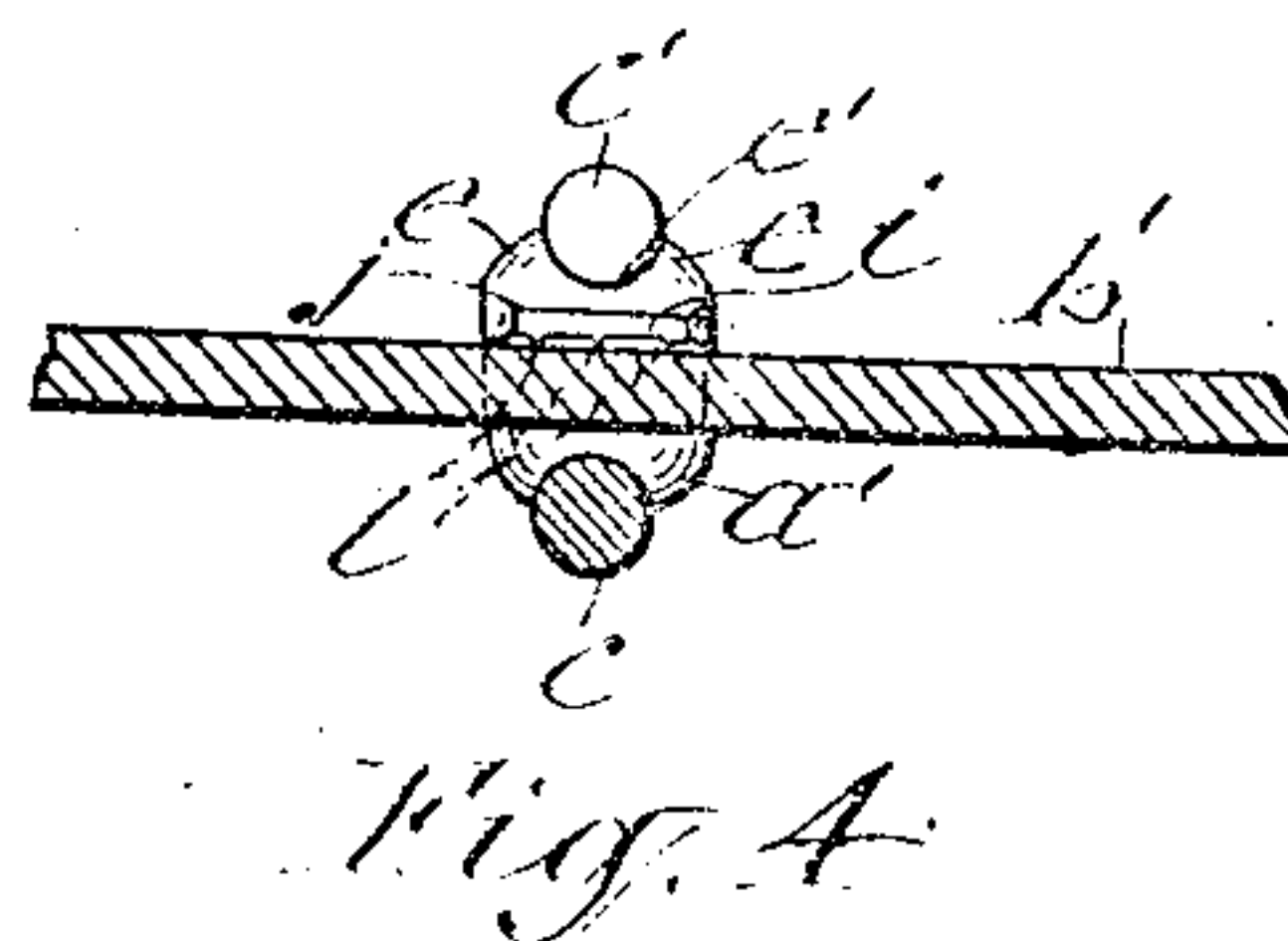
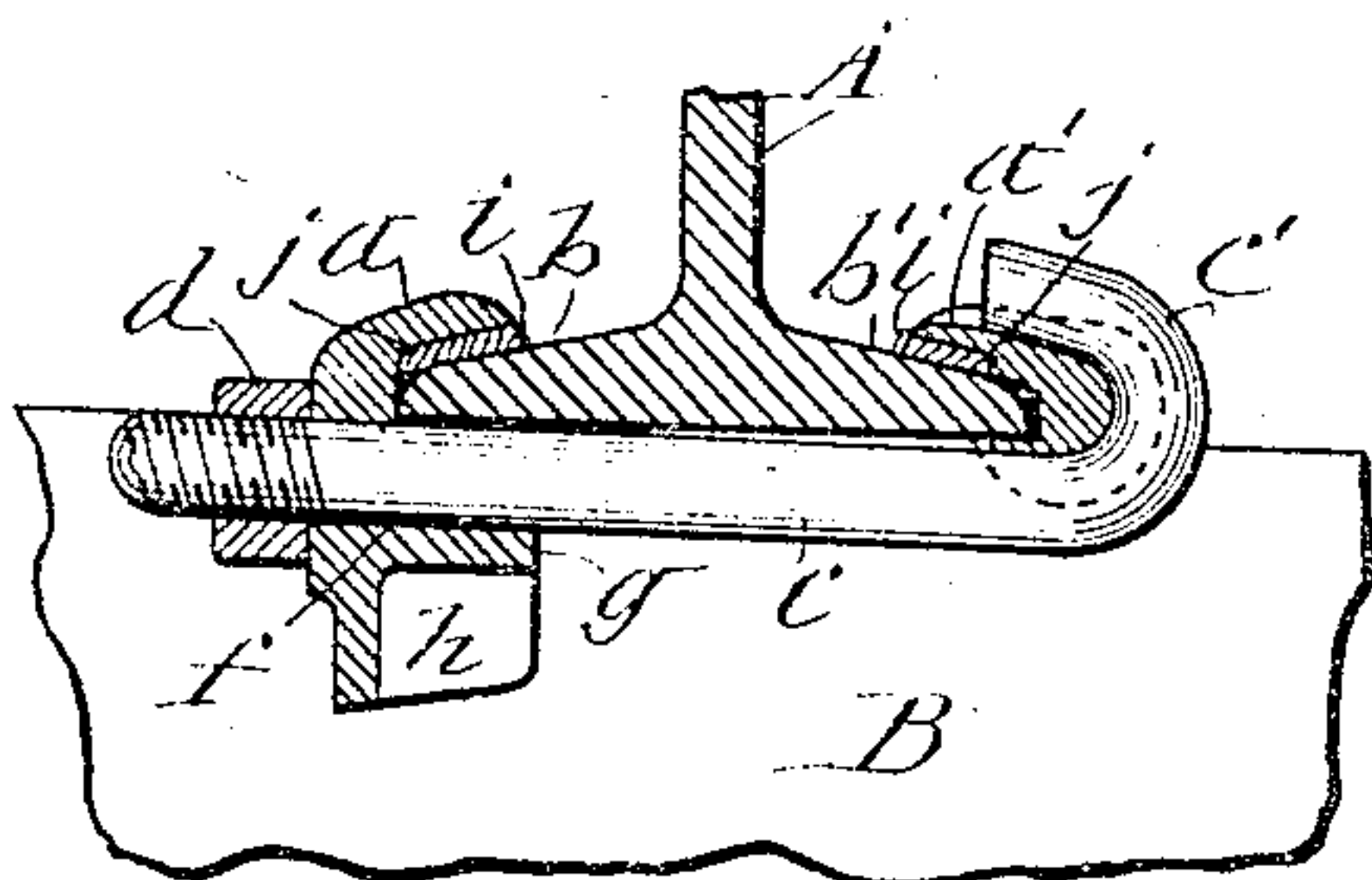
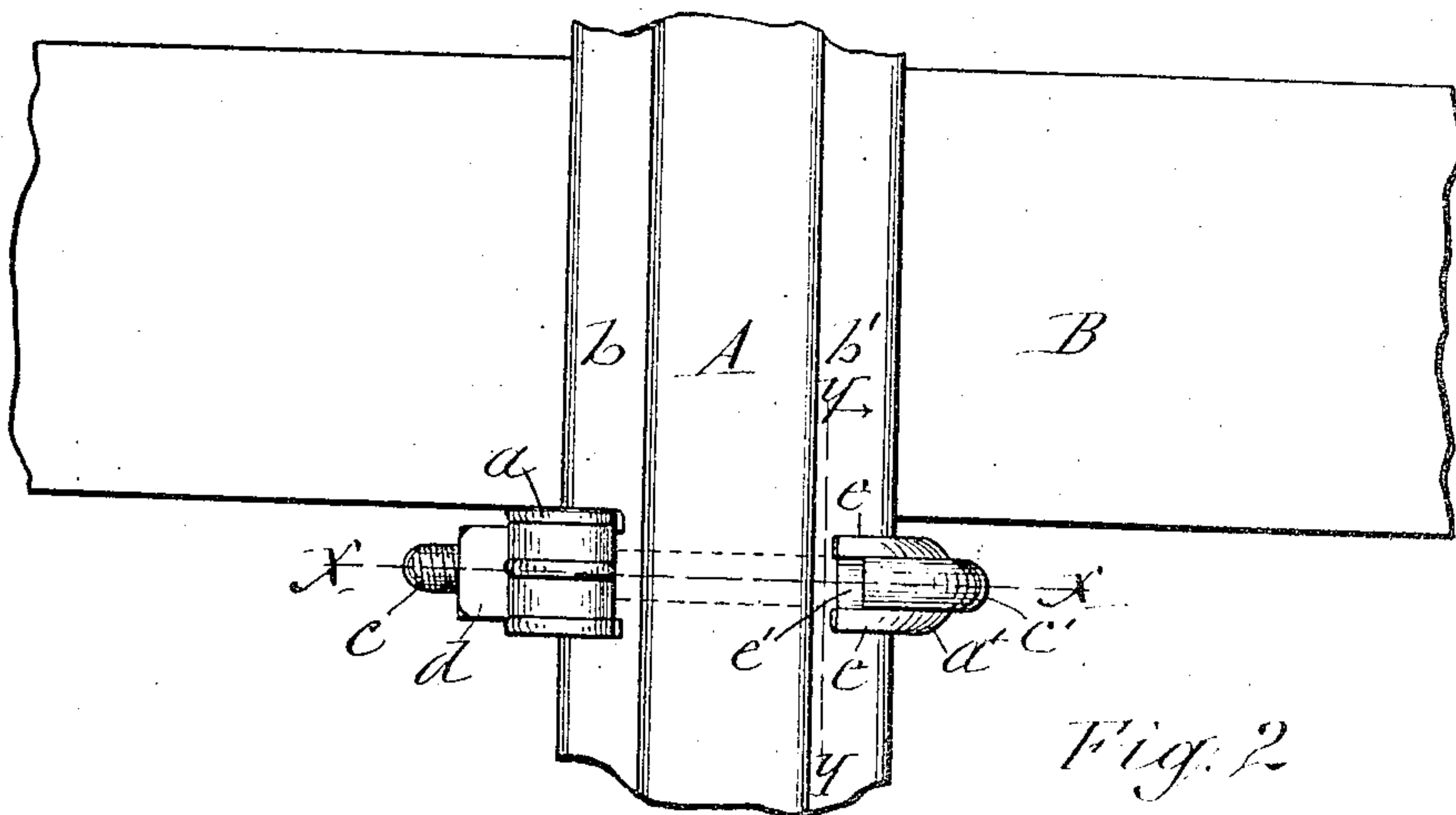
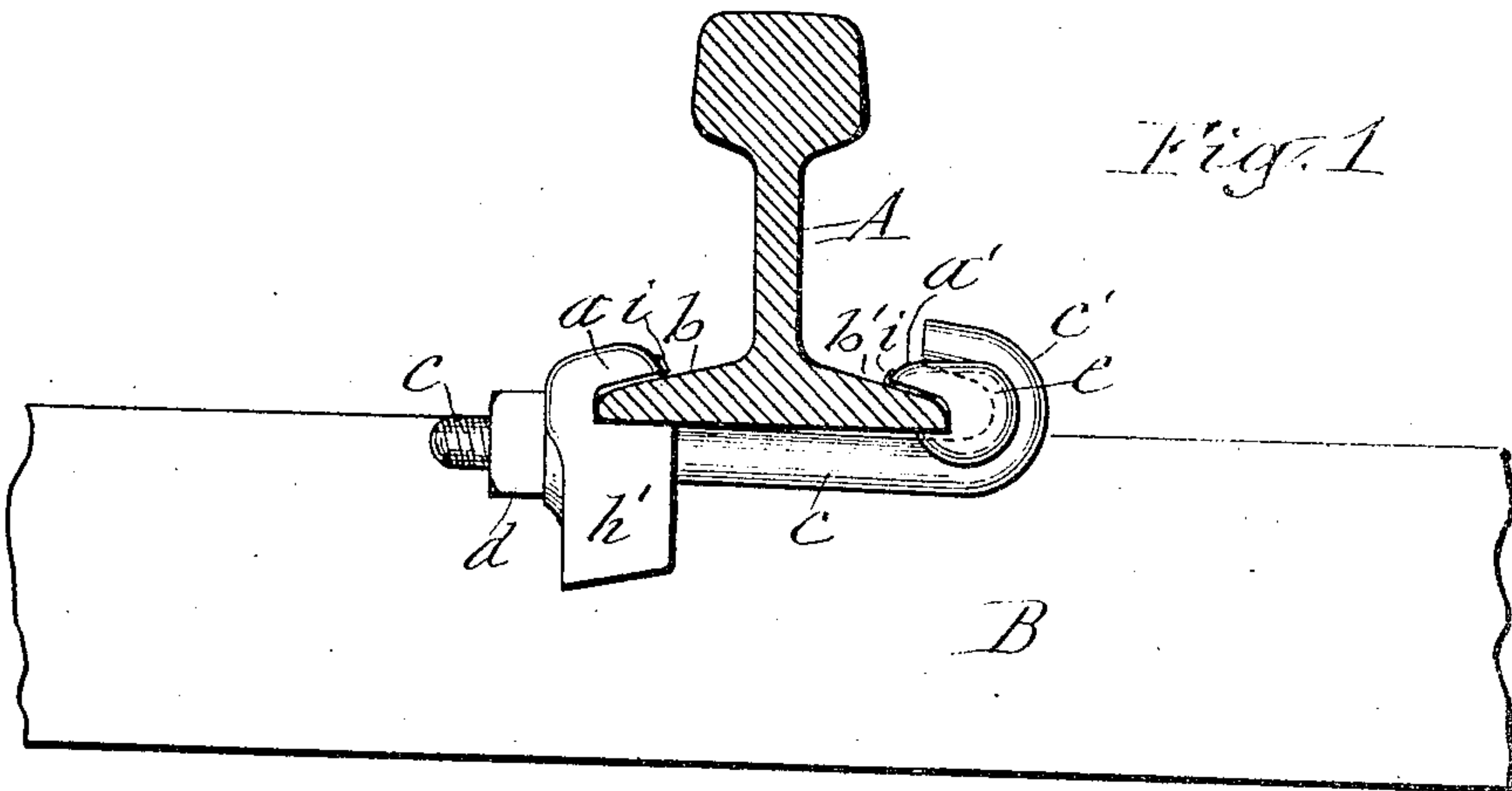


No. 816,265.

PATENTED MAR. 27, 1906.

H. H. SPONENBURG.
RAILWAY RAIL STAY.
APPLICATION FILED NOV. 13, 1905.



WITNESSES:

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HIRAM H. SPONENBURG, OF WADSWORTH, ILLINOIS, ASSIGNOR OF ONE-HALF TO EDWARD LAAS, OF OTTUMWA, IOWA.

RAILWAY-RAIL STAY.

No. 816,265.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed November 13, 1905. Serial No. 287,045.

To all whom it may concern:

Be it known that I, HIRAM H. SPONENBURG, of Wadsworth, in the county of Lake, in the State of Illinois, have invented new and useful Improvements in Railway-Rail Stays, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of rail-stays which are fastened to the rail and are disposed to abut against the side of the underlying cross-tie, so as to prevent longitudinal creeping of the rail; and the invention has, more particularly, reference to the species of rail-stay in which the member which draws the jaws into position to grip the rail is formed with a hook, serving the function of one of said jaws, as shown in my Patent No. 779,104, dated January 3, 1905.

The object of my present invention is to reduce the cost of manufacture of the rail-stay and at the same time increase the efficiency and reliability of its operation; and to that end the invention consists in the improved construction and combination of the component parts of the rail-stay, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a transverse section of a railway-rail with my improved rail-stay applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section on the line X X in Fig. 2, and Fig. 4 is a longitudinal section on the line Y Y in Fig. 2 viewed in the direction of the arrow.

In the said drawings, A represents the railway-rail, and B the underlying cross-tie which supports the rail on the road-bed.

a and a' denote the two jaws, which are shaped to grip the flanges b b' of the rail and may be forced into their gripping position by means of a bolt c , passing across the under side of the rail and connected to the said jaws and provided with a nut d , applied to the screw-threaded end of the bolt and bearing on the outer side of the jaw a to tighten the grip of the jaws. The opposite end of the bolt c is bent upward and toward the main or central portion of the bolt in the form of a hook c' , which in my prior invention hereinbefore referred to was formed to engage the flange of the rail and serve the function of the separate jaw a' of my present invention, which jaw is composed of cast metal, and thus inexpensive to manufacture and capa-

ble of obtaining a secure hold on the flange b' of the rail. The bolt c may be of any suitable shape in cross-section; but in order to reduce the cost of its manufacture I prefer to form it of a round or cylindrical rod of wrought-iron or steel. One end of said rod is screw-threaded for the purpose hereinafter explained, and the opposite end of said rod is bent up in the shape of the hook c' , which embraces the back and top of the jaw a' and receives a secure hold thereon by means of flanges e e at opposite sides of a groove e' , in which the hook c' rests. Said flanges at the same time serve to reinforce the jaw to more safely resist strain due to its grip on the rail.

The jaw a is provided with a transverse aperture f , which receives through it the screw-threaded end of the bolt c . An inwardly-extending bearing g , formed on the jaw a and engaging the under side of the bolt c and braced by the tie-abutting flange h , serves to strengthen the said jaw. To the protruding threaded end of the bolt c is applied a nut d , which bears on the back of the jaw a , and by turning the said nut so as to press very tightly on said jaw the bolt is caused to force both jaws into position to firmly grip the rail.

I preferably form the jaw a with two tie-abutting flanges h and h' at opposite sides of the jaw to allow said jaw to be placed on either side of the rail, and thus obviate the expense of making right and left patterns for casting the jaw. To cause the jaws to obtain firm and secure holds on the rail, I secure to the interior of each jaw a steel or other very hard metal gripping-plate i , preferably seated firmly in a recess j in the overhanging lip of the jaw. Said plate is formed with sharp ribs l , which bite the rail, as shown in Fig. 4 of the drawings.

Where the jaw on one flange of the rail is provided merely by forming the bolt c into a hook, as shown in the prior art, especially if the hooked portion of the bolt is cylindrical, it is difficult to secure a sufficiently tight grip upon that flange of the rail which is engaged by such hook; but by means of my present invention I retain all of the simplicity and cheapness of structure inherent in using a simple hook on one end of the bolt c , and by providing a tooth-carrying jaw adapted to be seated within this hook I attain the desired grip on the rail, which not only pre-

vents any longitudinal movement of the rail, but prevents any twisting of the rail-anchor with relation to the flange.

The jaw *e*, as stated, is preferably provided with teeth, which may or may not be formed directly on the jaw itself or on a hardened insert carried by the jaw, and such teeth are preferably in the form of sharp-edged ribs extending transversely of the rail-flange rather than into its edge. By using this construction I provide a number of teeth each of which needs to but slightly bite into the top of the rail-flange, so that there is no appreciable cutting into or weakening of the rail, while in the aggregate the grip of all of these teeth in the top of the rail-flange is such as to absolutely prevent any movement of the jaw with relation to the rail, or vice versa.

While, as stated, the nut may be tightened so as to force the jaws into gripping engagement with the rail-flanges, in common practice the desired bite of the jaws upon the rail-flanges will be more readily attained by sufficiently heavy blows with a sledge-hammer used to drive the jaws upon the rail-flanges, in which event the tightening of the nut *d* upon the end of the bolt *c* need be merely sufficient to hold the jaws in gripping position, thus facilitating the application of the device to the rail and lessening the danger of stripping threads from the bolt.

What I claim as my invention is—

1. A rail-stay comprising means for engaging one side of the rail and one side of the cross-tie, a bolt extending across the under side of the rail and adjustably supported at one end of said engaging means and formed with a hook at its opposite end, separately-formed rail-engaging means interposed between the said hook and rail, and means for tightening the holds of said bolt on the aforesaid rail-engaging means.

2. A rail-stay comprising two jaws engaging opposite sides of the rail, and a flange bearing on one side of the cross-tie, a bolt extending across the under side of the rail and having one end passing through one of said jaws and formed at the opposite end with a hook embracing the other of said jaws, and means applied to the bolt for forcing both jaws into gripping position on the rail.

3. In combination with a jaw engaging one of the rail-flanges and formed with a transverse aperture and with a tie-abutting flange, a jaw engaging the opposite rail-flange, a bolt extending across the under side of the rail and having one end screw-threaded and passing through the said aperture and formed at its opposite end with a hook embracing the other of said jaws, and a nut applied to the protruding threaded end of the bolt and pressing on the back of the jaw.

4. In combination with a jaw engaging one of the rail-flanges and a bolt extending across the under side of the rail and having

one end engaging the said jaw, of a jaw engaging the opposite rail-flange and provided with an aperture receiving through it the end of the bolt and with an inwardly-extending reinforce bearing on the bolt, a tie-abutting flange extending from the said bearing to the jaw, and means applied to the bolt for forcing the jaws into gripping position on the rail.

5. In combination with a jaw engaging one of the rail-flanges and provided with an aperture and with a tie-abutting flange, a jaw engaging the opposite rail-flange and formed with a groove in its exterior, a bolt formed at one end with a hook disposed in said groove and having its opposite end passing through the aforesaid aperture, and means applied to the protruding end of the bolt for forcing the jaws into gripping position on the rail.

6. In combination with a jaw engaging one of the rail-flanges and formed with a transverse aperture, a jaw engaging the opposite rail-flange and formed externally with a groove and with reinforcing-ribs at opposite sides of said groove, a bolt passing through the aforesaid aperture and terminating in a hook disposed in the said groove, and means applied to the opposite end of the bolt for forcing the jaws to the rail.

7. In combination with a jaw engaging the cross-tie and one of the rail-flanges and provided with a transverse aperture, a jaw formed with a groove receiving the opposite rail-flange, a hard-metal grip in said groove, and engaging the rail, a bolt passing through the aforesaid aperture, and formed at one end with a hook engaging the exterior of said grooved jaw, and means applied to the opposite end of said bolt for forcing the two jaws to the rail.

8. In combination with a jaw engaging the cross-tie and one of the rail-flanges and provided with a transverse aperture, a jaw formed with an internal groove receiving the opposite rail-flange and with an external groove and reinforcing-ribs at opposite sides of said groove, a hard-metal rail-gripping plate seated in the internal groove, a bolt passing through the apertured jaw and formed at one end with a hook embracing the external grooved portion of the jaw, and means applied to the opposite end of the bolt for forcing the jaws to the rail.

9. The combination with a rail, of a pair of jaws adapted to be forced into gripping engagement with the two flanges of the rail, a bolt arranged to extend beneath the rail and formed at one end with a hook arranged to embrace one of said jaws and provided at the opposite end with adjustable means whereby said jaws may be held in gripping engagement with said rail, a portion of the structure being provided with a depending flange adapted to engage a vertical face of a tie.

10. A rail-stay comprising a bolt adapted to extend underneath a rail and provided at one end with a hook, a rail-gripping jaw adapted to be seated within said hook, said
5 jaw being provided with teeth adapted to bite into the upper face of a rail-flange, a second jaw engaging the opposite end of said bolt, which end of said bolt is provided with

adjustable means for holding said jaws in gripping engagement with a rail, and means 10 depending from said structure and adapted to engage a vertical face of a tie.

HIRAM H. SPONENBURG. [I. S.]

Witnesses:

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GILES S. FARMER.