

(No Model.)

2 Sheets—Sheet 1.

M. G. HUBBARD.
RAILROAD TRACK.

No. 465,984.

Patented Dec. 29, 1891.

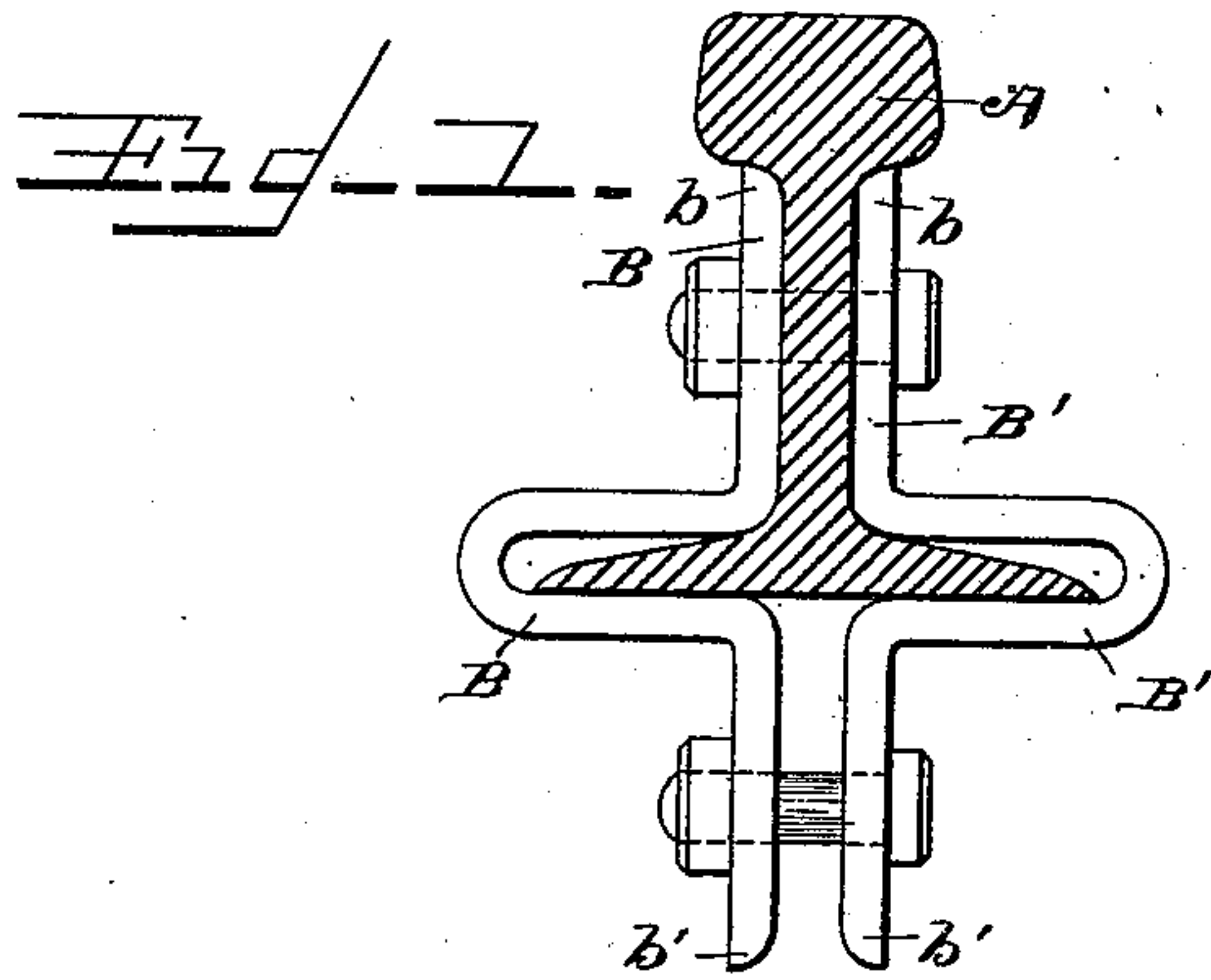


Fig. 1

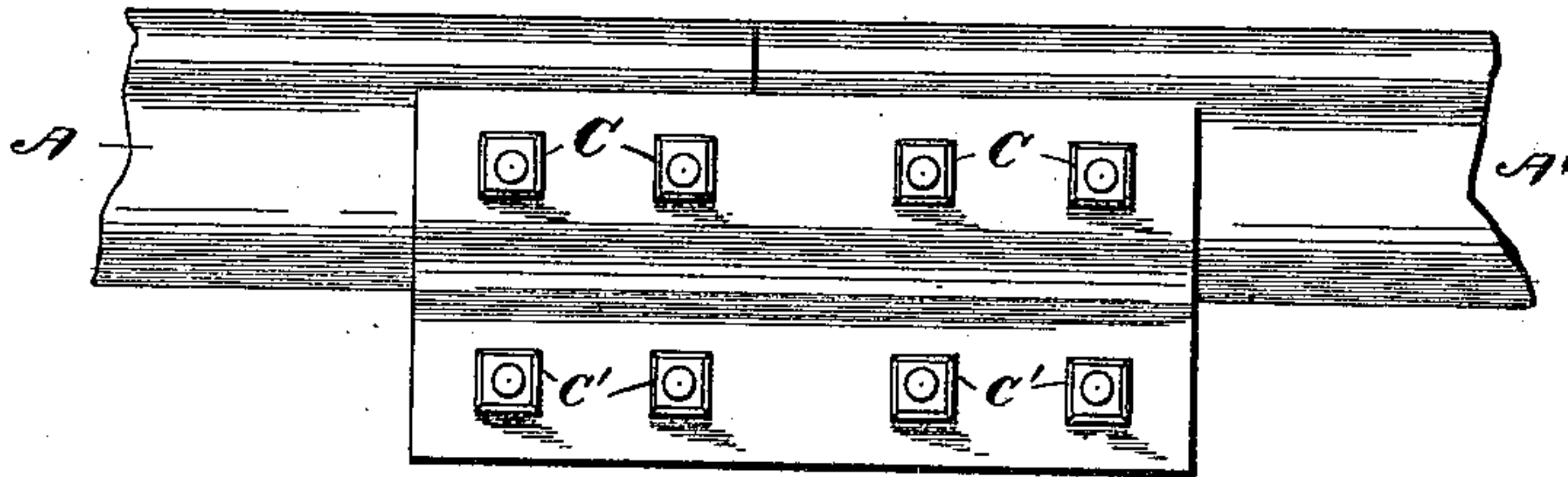
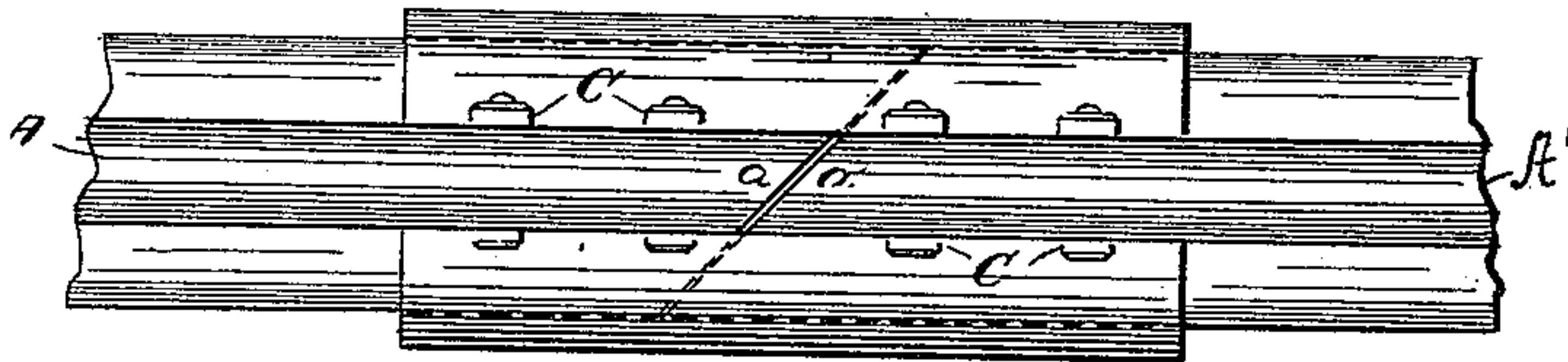


Fig. 2



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Marion Bell
Wm. J. Robinson

INVENTOR

Moses G. Hubbard
BY *Wm. Smith & Son*
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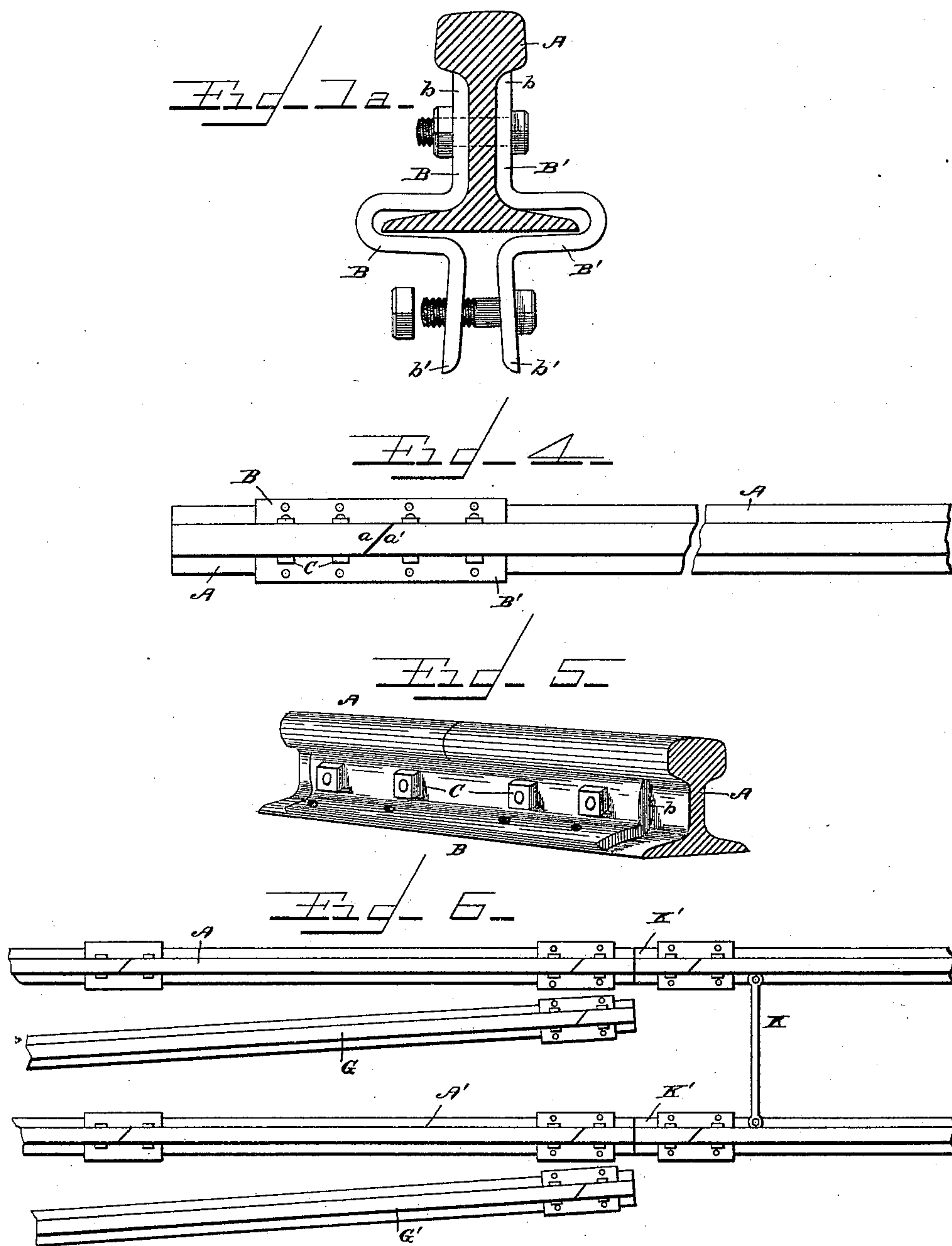
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Witnesses:
A. V. Weaver
J. T. Robertson

Inventor:
Moses G. Hubbard.
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Attorneys.

UNITED STATES PATENT OFFICE.

MOSES G. HUBBARD, OF CHICAGO, ILLINOIS.

RAILROAD-TRACK.

SPECIFICATION forming part of Letters Patent No. 465,984, dated December 29, 1891.

Application filed November 7, 1890. Serial No. 370,660. (No model.)

To all whom it may concern:

Be it known that I, MOSES G. HUBBARD, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Railroad-Tracks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain improvements in the construction of railroad-tracks in which the rails are provided with lapping beveled ends; and it consists in the combination, with the rails, of fish-plates formed to utilize the lapped joint and give greater stiffness and rigidity thereto, and adapted to be rolled or pressed out of sheet-steel of uniform thickness in order to utilize the elasticity of the steel in a lateral direction to exert a continuous and permanent elastic force on the base of the rail and on the bolts and nuts, by which the plates are attached to the rail for preventing the parts from jarring loose, and with sufficient scope to the elasticity to take up all ordinary wear, and thereby to form a permanent and reliable attachment.

It further relates to the construction of the fish-plates, adapting them to be reversed when they become worn, and thereby to increase their durability.

In the accompanying drawings, Figure 1 is a transverse section through a rail, showing my improved double-flanged reversible fish-plates in end elevation. Fig. 1^a is a similar view showing the fish-plates as they appear previous to bolting the lower ends thereof together. Fig. 2 is a side elevation of the same, and Fig. 3 is a plan view showing, also, the beveled ends of the rail-sections united by said plates. Fig. 4 is a plan view of a rail composed of a short section cut from one end of a rail and united to the opposite end by a pair of my reversible fish-plates modified for that purpose to form a rail having squared ends from one which had beveled ends. Fig. 5 is a perspective view of the modified form of reversible fish-plate for use in side-track and switch construction; and Fig. 6 is a plan view showing a portion of main track secured as described, and a sliding-rail portion having its rail ends squared to adapt them to

slide by correspondingly squared ends for switches, &c.

A A' in Figs. 2 and 3 indicate adjoining end portions of two T-rails made of the usual or preferred form in cross-section, but having their ends provided each with the long bevel indicated at *a* and *a'*, so that when two ends are brought together, as shown in Fig. 3, they will lap by each other on the bevel for some considerable distance between the double flanges of the fish-plates, by means of which the base of the rails is firmly clamped. By this construction the fish-plates (indicated at B and B') have each a solid rail-surface to rest against at a point opposite the joint or ends on the other side of the rail. The strain on the opposite fish-plates is at different points, and their leverage and the strength of the joint are greatly increased.

The double-flanged reversible fish-plates or splice-bars are made to fit the sides of the rail in the usual manner; but instead of the flanges terminating at the outer edge of the base of the rail they are extended around said base in a half-round or U shape on each side, forming a double flange and terminating in pendent ribs *b'* and *b'*, similar to the upper portion *b b* or splice-bars proper, and similarly provided with bolt-holes in such manner that when the parts *b b* become worn or injured in any manner the fish-plates can be turned or reversed, the parts or ribs *b'* taking the place of the parts *b b*. This U shape of the sides, both internal and external, is indispensable to the successful rolling of the fish-plates from thin steel, as any sharp corners would be fatal to the strength of the steel, and the elastic element aimed at cannot be so well attained with any other material. In fish-plates thus formed from thin sheet-steel of uniform thickness and curved as described, whereby all sharp angles are avoided, the elasticity of the steel is retained, and by forming them with the upper and lower ribs set at an angle to each other or inclining outward from a common plane, as shown in Fig. 1^a, this elasticity is utilized for holding the bolts and nuts from jarring loose, for clamping tightly the ends of the rails, and taking up wear, which would otherwise soon allow the parts to work loose. The lower ribs

give greatly-increased vertical stiffness or rigidity to the joint, and it will be seen that when the upper portions or ribs *b b* are drawn snugly against the rails the lower parts or ribs *b' b'* will stand flaring outwardly, and by drawing these inward toward each other and into the vertical position shown in Fig. 1 by the supplemental bolts *C'*, similar to those at *C*, uniting the parts *b* and the rail, they are made to clamp the ends of the bases of the rails together snugly with a strong elastic force and thereby give greatly-increased lateral stiffness to the joint and a continuous or permanent elastic pressure on all of the bolts and nuts sufficient to prevent their jarring loose, which is important in the main track as it is not so frequently inspected as the track at switches and stations. By the use of these elastic fish-plates the necessity for using elastic nut-locks or other devices for a similar purpose is obviated.

In constructing the track with rails having beveled ends, the use of the double-flanged fish-plates described having the pendent ribs would interfere with the free sliding movements of the rails at switch-connections. To obviate this difficulty, a reversible single-flanged fish-plate having the modified form shown at *B²* in Fig. 5 is employed at such connections, the lower pendent ribs being dispensed with, leaving the lower flat surface of the rail free to slide laterally. In this construction of the fish-plates the base-flanges conform exactly in shape to the upright part or fish-plate proper, and when the latter becomes worn or injured the plates may be reversed, using the side flanges, which are suitably perforated, to take the place of the upright part.

The fish-plates are formed, as stated, by rolling or pressing them from sheet-steel of uniform thickness into the form shown and described, as from the peculiar form given to them and the lap given to the rails (whereby their leverage becomes favorable to the strength and stiffness of the fish-plates) they can be made from much lighter metal than where the usual form of joint and fish-plate is employed.

The reversible fish-plates should be made with the portion intended to replace the worn-out portion slightly wider than the space between the upper and lower flanges of a new rail, so that when the rail is worn a tight fit may be attained and the joint made as perfect as when new.

In Fig. 4 a rail formed with beveled ends is shown with its ends squared by cutting a short portion, as *a'*, from one end of the rail and uniting or splicing it to the other end *a* by means of the single-flanged fish-plates *B²*.

In Fig. 6, *A* and *A'* are rails of the main track, having their joints secured by the double-flanged fish-plates described, and *G'* *G'* are siding-rails having square ends and flat under surfaces to adapt them to the surface of the cross-tie supporting them.

The squared ends of the last rails of the main track and of the switch-rails may be formed, as shown at *K' K'*, by the cutting and splicing, as shown above, of rails which had beveled ends. In this way the necessity of keeping on hand two kinds of long rails would be avoided and would frequently be convenient for repairs.

K is one of the connecting-rods connecting the switch-rails in the ordinary manner.

By the combination of the above-described improvements and their modifications, as described, a system of railroad-tracks may be formed having the maximum degree of safety, smoothness, durability, and convenience, with a probable reduction in first cost, while the expense of keeping it in repair would be materially reduced.

Having thus described my improved system of railroad-tracks, what I claim as new, and desire to secure by Letters Patent, is—

1. In a fish-plate rail-joint, the combination of *T*-rails having beveled ends and the fish-plates for uniting said ends of a form adapting them to be rolled from sheet-steel of uniform thickness and to fit the sides of the rail and embrace the base-flanges thereof, and having the pendent flaring portions, adapting them, when drawn into place by the retaining-bolts, to exert a strong and continuous lateral pressure on the wearing parts of the joint, substantially as described.

2. A double-flanged splice-bar or fish-plate having flanges inclined with respect to each other and united in *U* shape and all the corners of which are curved, as described, adapting said fish-plate to be rolled from sheet-steel of uniform thickness and to retain the elasticity of the metal, whereby it is adapted to exert a strong elastic pressure on the rails and on the retaining-bolts and nuts, substantially as described.

3. A flanged fish-plate of uniform thickness and of a form adapting it to be rolled from sheet-steel and to be reversed in use and having its upper and lower portions inclined or set at an angle to each other, permitting the lateral elasticity of the metal to be utilized, for the purposes and substantially as described.

4. In a rail-joint, the combination, with the *T*-rails, of two reversible double-flanged fish-plates of uniform thickness and of a form adapting them to be rolled from sheet-steel, and having the opposing upper and lower portions inclined or made flaring with respect to each other, whereby the lateral elasticity of the metal is utilized when said plates are bolted together, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand this 1st day of November, A. D. 1890.

MOSES G. HUBBARD.

Witnesses:

JOSEPH H. CAMPBELL,
J. CLIFFORD GOULD.