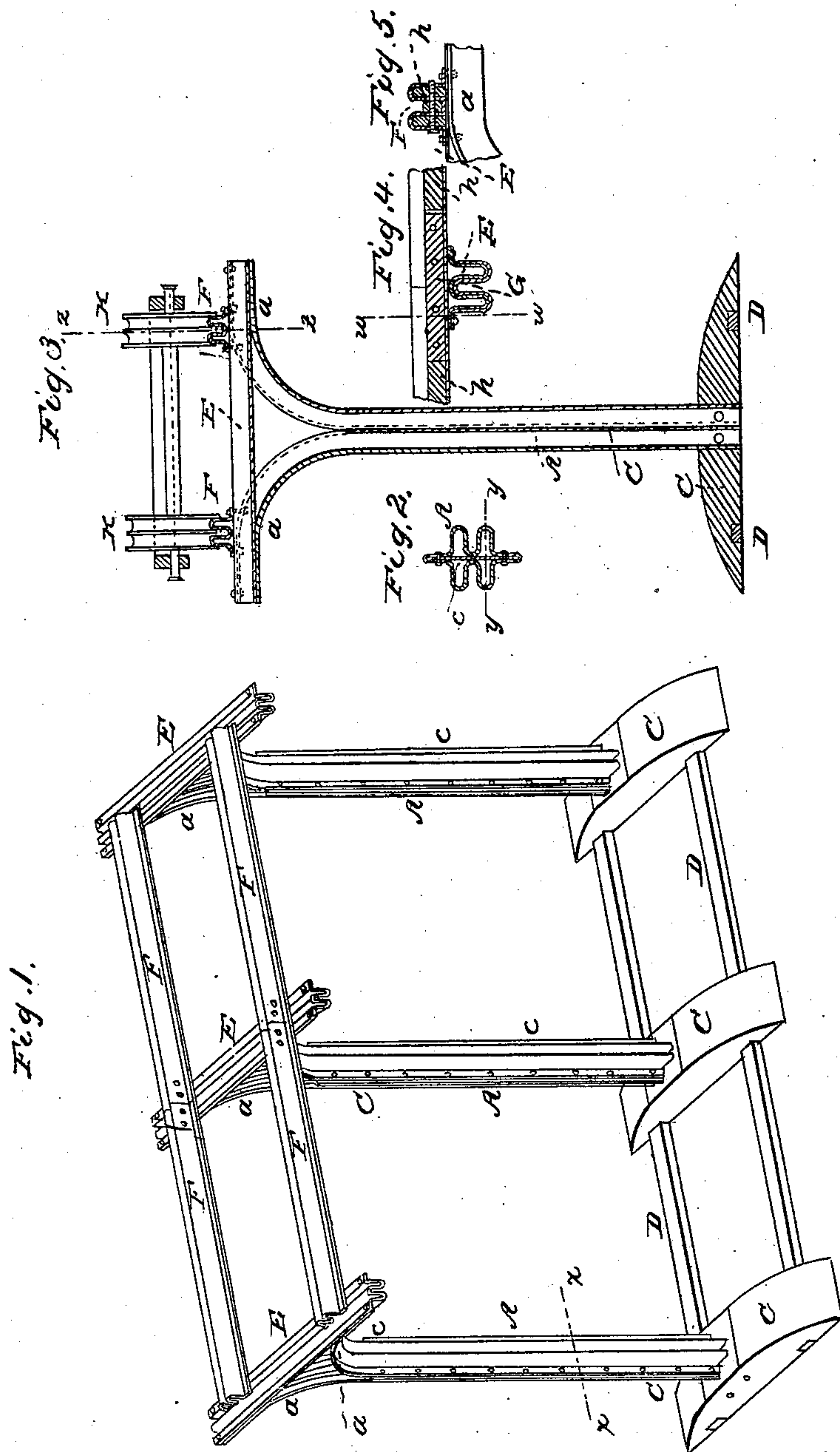


R. MONTGOMERY.  
Elevated Railway.

2 Sheets—Sheet 1.

No. 85,684.

Patented Jan'y 5, 1869.



Witnesses:

Wm. H. Pomeroy

David A. Burr

Inventor:

R. Montgomery

R. MONTGOMERY.

2 Sheets—Sheet 2.

Elevated Railway.

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Fig. 6.

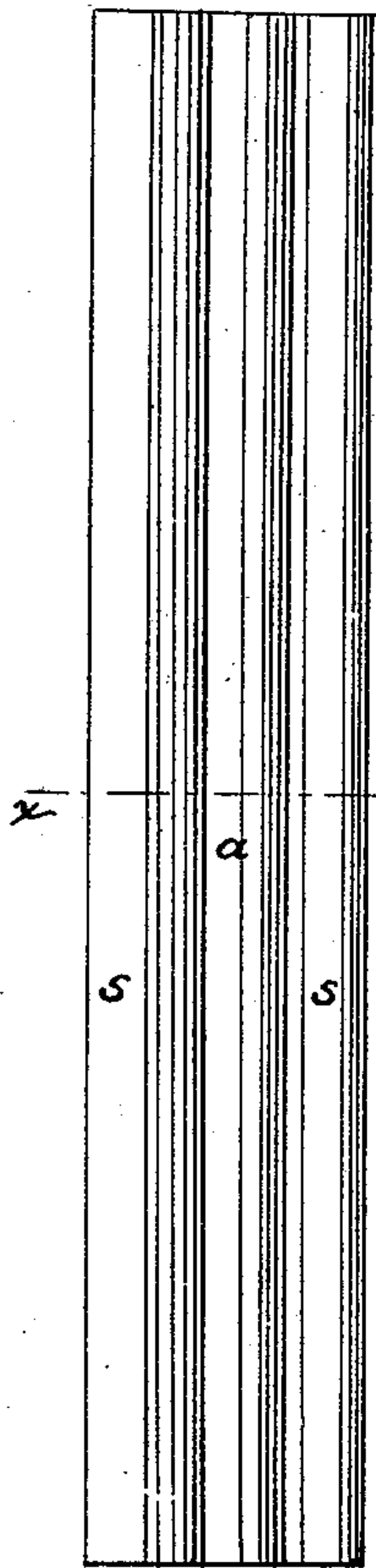
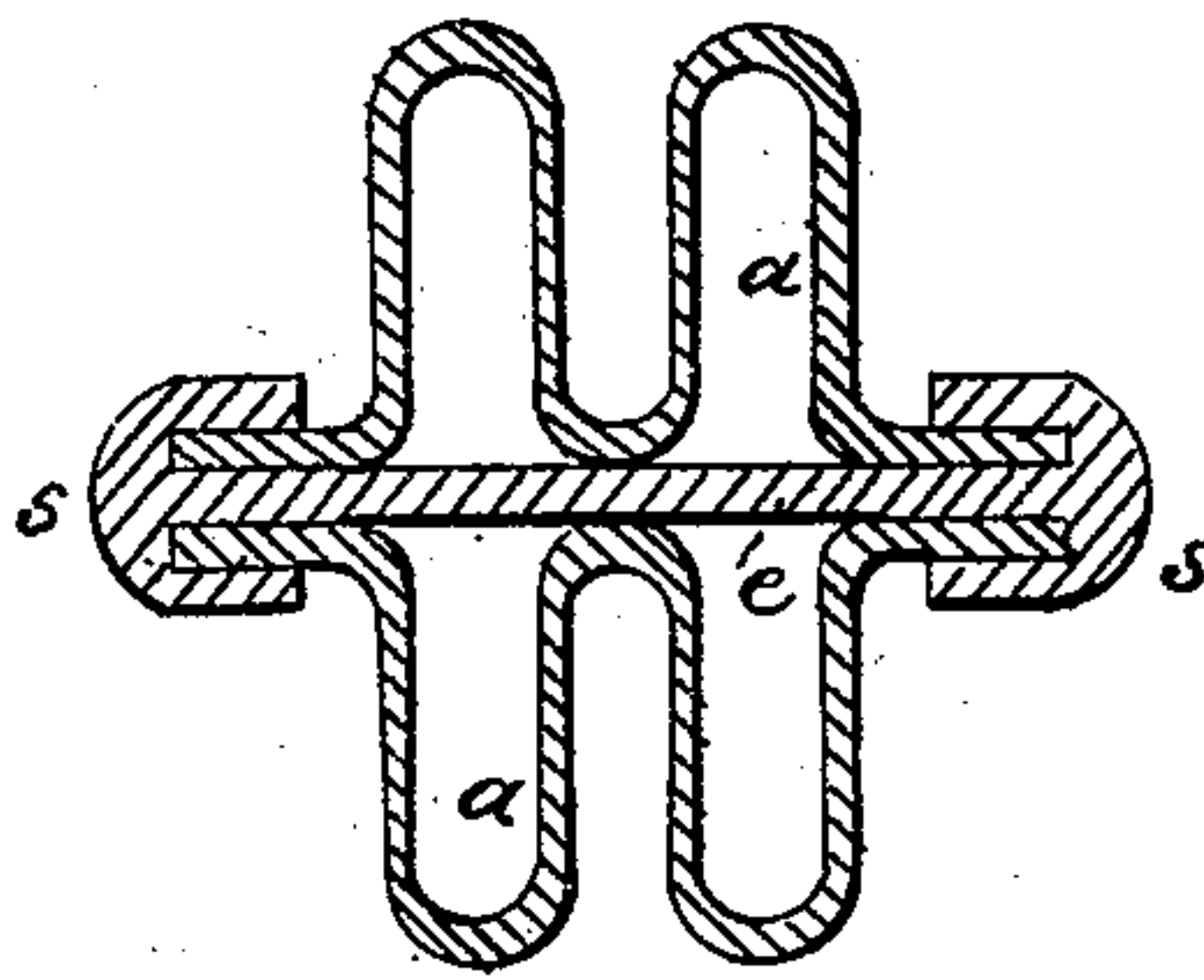


Fig. 7.



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# United States Patent Office.

RICHARD MONTGOMERY, OF NEW YORK, N. Y.

Letters Patent No. 85,684, dated January 5, 1869.

## IMPROVED ELEVATED RAILWAY.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, RICHARD MONTGOMERY, of the city, county, and State of New York, have invented certain new and useful Improvements in the Construction of Corrugated-Metal Elevated Railways; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of a section of my improved elevated railway;

Figure 2, a transverse section of one of the standards or supporting-columns in the line *xx* of fig. 1;

Figure 3, a vertical section, through a standard and cross-tie beam of the railway in the line *yy* of fig. 2;

Figure 4, a vertical longitudinal section through the rail, at a joint thereof, upon a cross-tie beam, cutting said beam and the end of the standard-plate transversely in the line *zz* of fig. 3; and

Figure 5, a transverse section in the line *ww* of fig. 4.

Figure 6 is an elevation, and

Figure 7, a cross-section of a standard, in which the two corrugated plates or beams are united, and secured upon the interposed tie-plate, without rivets, by means of grooved shoulders or flanges, upon the edges of the tie-plate.

Similar letters of reference indicate like parts in all of the drawings.

The nature of my improvements consists—

First, in outwardly curving, in opposite directions, from a vertical to a horizontal plane, the upper ends of the corrugated beams, which, united face to face, constitute standards or supports for elevated structures.

Second, the combination of a corrugated cross-tie beam with the outwardly-curved ends of the corrugated plates of said improved standards, when used in supporting an elevated railway, to prevent the same from spreading apart, and at the same time afford a bearing for the rails.

Third, the formation of shoulders on either side of the edge of the central longitudinal tie-plate, interposed between the corrugated plates forming the standards for elevated structures, by means of a rib or head, formed or secured upon the edges of said tie-plate, so that said shoulder shall firmly stay and bind the corrugated plates, receive all lateral thrust thereof, (thus relieving the rivets from strain, so that a less number is required,) and serve effectually to prevent the spreading or opening of the folds of the corrugated beams; also, the formation of grooves in the shoulders formed by the rib on the edge of the tie-plate, to receive and secure the edges of the corrugated plates, and thus obviate the necessity of rivets to unite them; and

Fourth, the combination of a wooden stay-strip with the central grooves of the rails, in continuation of the metallic tie-bars placed therein at the joints of the rails.

In the accompanying drawings, A A represent the standards supporting my improved railway.

These standards are composed of two double-flanged, corrugated-iron beams *a a*, riveted together, face to face, upon an interposed longitudinal tie-plate, *c*.

The lower ends of these standards A are inverted, and pinned within suitably-shaped mortises, in solid metallic base-blocks C, united and braced by parallel bars D, secured to the bottom thereof, and the upper ends *a a* of the corrugated beams forming these standards are, in each, so bent apart outwardly as that they shall project horizontally in opposite directions, but in the same longitudinal plane, and form a seat for the ends of a correspondingly-corrugated cross-tie beam, E, fitting accurately and closely upon and into the same, and riveted thereto, as illustrated in figs. 1 and 4 of the drawings.

The plates *e*, interposed between the faces of the corrugated beams forming the standards, are thickened at their edges, as shown in fig. 2, to form shoulders, which shall engage the edges of the corrugated beams secured thereto, and serve to prevent the beams from spreading laterally, thereby imparting great additional strength thereto.

These shoulders or projections *s s*, on the edges of the tie-plate *e*, may be grooved, as illustrated in fig. 7, (sheet 2 of the drawings,) to receive the edges of the corrugated beams or plates *a a*, so that they shall be firmly and securely united therewith, and retained thereupon without the use of rivets.

Double-corrugated beams F, laid upon the cross-tie beams in such position as that the central groove shall be open upwardly, constitute the rails of the railway. Each beam equals in length the distance between the standards, so that the joints between the rails fall upon the cross-tie beams, as shown in fig. 1.

To make the rails continuous, metallic tie-plates G, fig. 4, are inserted, and secured between the folds of the corrugations at the joints, as shown in figs. 4 and 5, to break them.

The central grooves of the rails may be filled in, or partially filled in, along their whole length, with wooden strips *h*, continuous with the metallic strips, breaking the joints.

Upon these rails I place triple-flanged wheels K, the flanges thereof being so formed as to project on either side of the rail, and also in the central groove, the central safety-flanges, however, being made much less projecting than the other guide-flanges.

The central flange may, if desired, be omitted, and the wheels used with outer flanges alone thereon, and, in such case, the central groove may be entirely filled up and closed with an inserted strip.

Having thus fully described my improvements, I claim therein as new, and desire to secure by Letters Patent—

1. Standards or supports A, formed by two corru-



gated beams, whose upper ends *a a* are curved in opposite directions, substantially in the manner and for the purpose herein set forth.

2. A corrugated cross-tie beam, *C*, in combination with the outwardly-curved ends of the two corrugated beams forming my improved standards *A*, substantially as and for the purpose herein set forth.

3. Plain or grooved shoulders or stay-flanges, formed upon the edges of a tie-plate, *c*, interposed longitu-

dinally, and secured between two corrugated-metal beams, substantially as herein set forth.

4. Central stay-strips *h*, inserted in the upper central groove of my improved corrugated rail *F*, substantially as and for the purpose herein set forth.

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Witnesses:

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WM. H. ROWE.