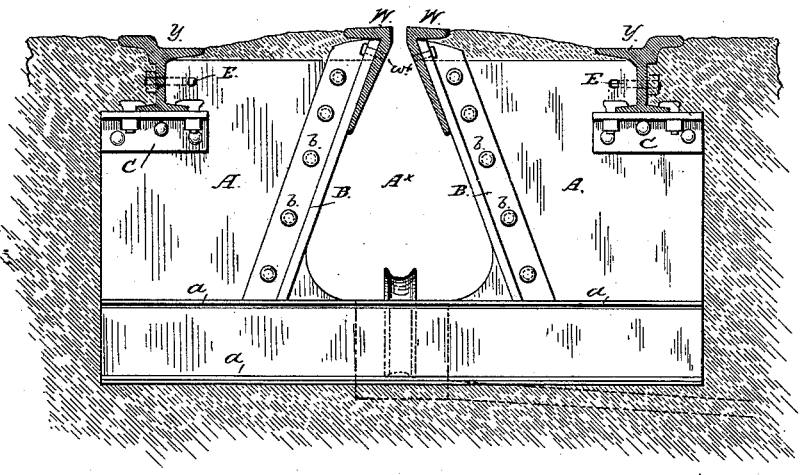
(No Model.) 2 Sheets—Sheet 1.

S. GIBSON.

CONSTRUCTION OF SUBWAY YOKES FOR CABLE ROADS.

No. 382,969. Patented May 15, 1888.

Fig. 1.



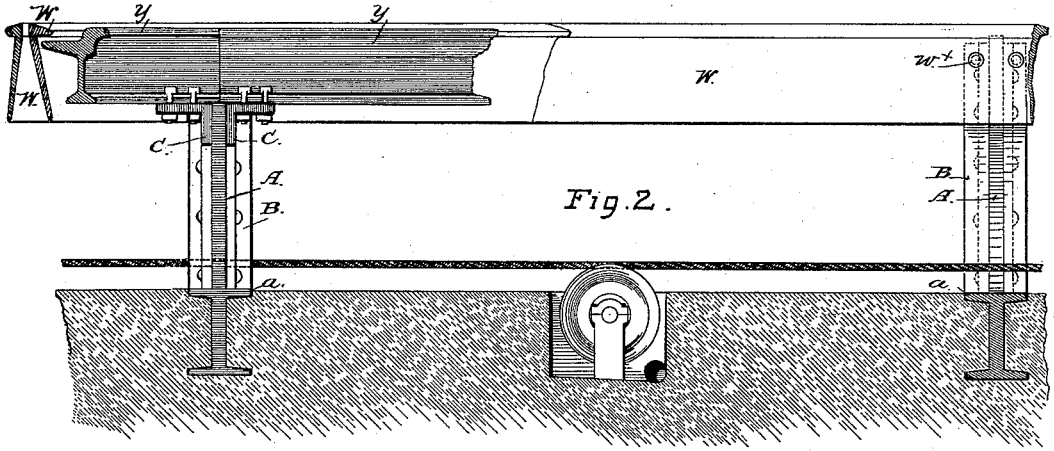
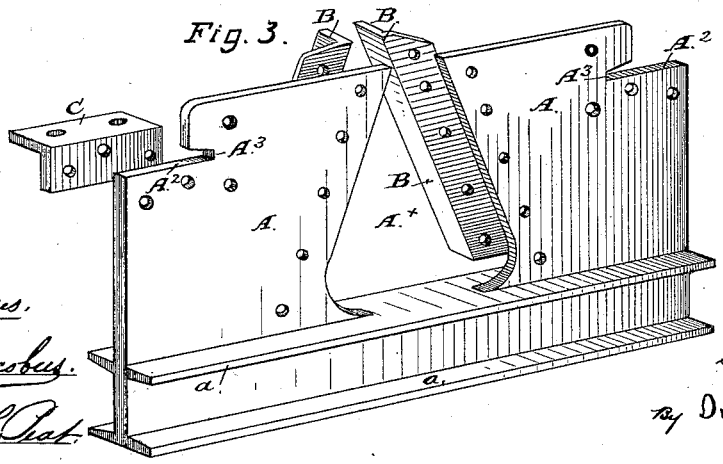


Fig. 2.

Fig. 3.



Witnesses.
J. E. Jacobus.
R. H. Rat.

Inventor.
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by Dewitt & Storm.
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(No Model.) 2 Sheets—Sheet 2.

S. GIBSON.

CONSTRUCTION OF SUBWAY YOKES FOR CABLE ROADS.

No. 382,969. Patented May 15, 1888.

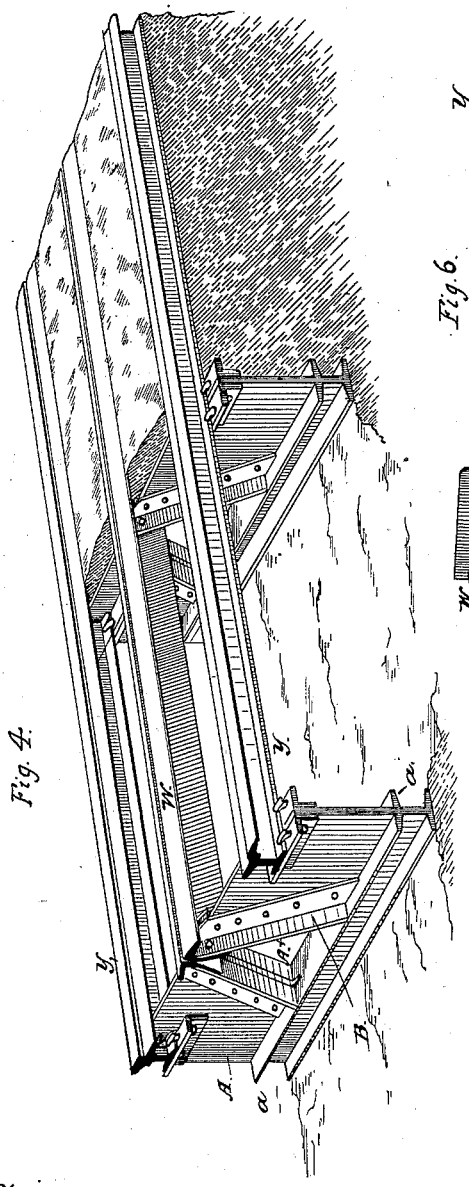

Fig. 4.

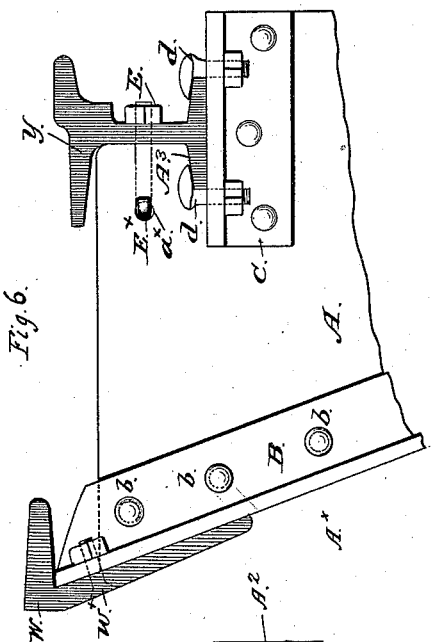

Fig. 6.

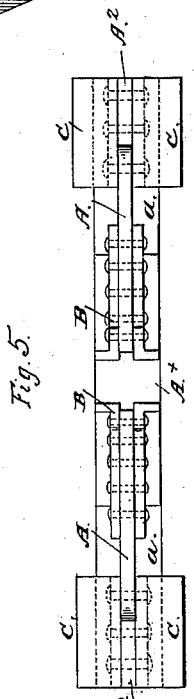

Fig. 5.

Witnesses:
J. E. Jacobus.
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UNITED STATES PATENT OFFICE.

SAMUEL GIBSON, OF SAN FRANCISCO, CALIFORNIA.

CONSTRUCTION OF SUBWAY-YOKES FOR CABLE ROADS.

SPECIFICATION forming part of Letters Patent No. 382,969, dated May 15, 1888.

Application filed December 27, 1887. Serial No. 259,184. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL GIBSON, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in the Construction of Subway-Yokes for Cable Roads; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawings, that form a part of this specification.

My invention relates to improvements in skeleton frame-work of subways for cable railroads, and more particularly to a novel construction of yoke or that part in such frame-work which carries the rails and slot-irons, and which being placed at intervals apart in number, as required, constitute the transverse supports of the roadway and the skeleton or the ribs of the cable-tube.

My said improvements embrace a novel construction of yoke for such purpose, and also a novel means of fastening and holding the rails to and upon the yoke; and the nature of these improvements consists, first, in forming a yoke out of a single plate with a bottom flange and solid continuous webs of the full depth of the yoke between the opening left for the tube and the rail chairs or supports at either side thereof, as hereinafter explained; secondly, in setting the bottom flange of the rail into this web and securing the rail against outward lateral displacement by a hook-bolt, as set forth herein and represented in the accompanying drawings, reference being made to the said drawings by figures and letters.

Figure 1 of the said drawings shows a front view of my improved yoke in position, with the ends of the rails and slot-irons in section, the sides of the cable-tube and the concrete and earth being removed from the front of the yoke to expose the webs from the inner to the outer edges and the rail-chairs. Fig. 2 is a side elevation of a section of frame-work between two yokes, showing the concrete bottom of the cable-way, the cable-carrying sheave, and pit for it in the concrete, and also one of the yokes in section. Fig. 3 is a perspective view of the yoke with the separate angle-irons detached. Fig. 4 is a perspective view of a section of roadway, showing two yokes in position and the filling between them and between the rails and slot-irons removed down to the bottom flanges of the yoke. Fig. 5 is a top view of the yoke. Fig. 6 shows the rail-fastenings in detail.

The plate A, of which I form this improved yoke, is first made in a solid piece, with the flanges *a a* on the bottom to give suitable stiffness and prevent buckling, as well as to furnish a suitable base to rest on the foundation. Such a plate can be rolled out and cut in lengths as the gage of the road to be laid may require. The triangular space $A^{\times}$ is afterward cut out of the center for the cable-opening and the places A^2 for the rails are cut at the upper corners, the recesses A^3 being cut into the plate to let in the flange of the rail and bring the edge of the plate close up to the web of the rail. Holes are punched along the edges of the center opening and at the outer edges of the plate for the rivets and bolts by which the angle-irons and rail-chairs are fastened.

B B are angle-irons placed at the inner edges of the plate and secured by rivets *b*, for the double purpose of strengthening the plate along the edges of the cable-way opening and of furnishing supports for the slot-irons W. The flanges of these pieces that project at a right angle from the plate also form supports for the boxing or the brick-work that closes in the sides of the cable-way between the yokes. The lower ends of the angle-irons rest upon the flange *a* of the plate, and their upper ends take the slot-irons or rails W, which are secured in place by the bolts $W^{\times}$. The slot-irons set directly upon the ends of these pieces, and the horizontal flange of the plate under the bottom ends of the pieces takes the downward thrust and relieves the rivets.

C C are angle-plates secured by rivets or bolts to the sides of the plate A at the outer edges directly under the cut-away parts where the rails Y are let in. By means of suitable bolts, *d d*, having heads to take the rail-flanges, the rails are fastened down to the chairs. In addition to these fastenings I employ a hook-bolt, E, to draw the rail up to the plate A and prevent lateral displacement outward. The hooked end $E^{\times}$ of this fastening takes through a hole $a^{\times}$ in the plate, and the screw-threaded

shank passes through the web of the rail and takes a nut on the outside. The position of the rail when set and fastened in this manner is clearly shown in Figs. 1 and 6 of the drawings. That portion of the yoke setting over the inner flange of the rail prevents it from tilting, while the edge of the plate that sets against the web of the rail stops any lateral movement inward, as the fastening E stops similar displacement in the opposite direction.

The bottom of the rail is supported directly by the edge of the plate at the cut-away portion A^2, and not altogether by the chairs, so that the fastenings holding the chairs to the plate are not required to sustain the weight borne by the rails, but the same comes upon the top of the plate.

As thus constructed of a solid plate my improved yoke will be found to possess several advantages over the skeleton yokes or frames that are formed of several plates or bars riveted together, both in point of strength, stability, and the capacity to resist all forces that tend to spread or contract the slot-irons and to affect the gage of the track or throw the rails out of line.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A yoke or frame for cable-railway construction, formed of a single plate, A, with a flanged bottom and an opening above the same for the cable-way, and the slot-iron supports B B, and rail-chairs C C, fastened to the plate in position, as described.

2. A yoke for cable-railway construction, having solid portions or webs between the cable-way opening and the rail supports or chairs at the outer edges for the full depth of the yoke, and the seats and recesses A^2 A^3 at the upper corners for the rails, substantially as and for the purpose set forth.

3. A yoke for cable-railway construction, having solid web portions, as described, with cut-away portions at the upper outer corners for the rails to let the inner flange of the rails into the plate, in combination with the hook-fastening E, which takes through the web of the rail and into the plate, as described.

4. The combination of the flanged plate A, angle-iron supports B B on either side of the cable-way opening in the plate, the flange *a*, and the slot-irons, substantially as described.

5. The herein-described yoke, having the rail-seats A^2, recesses for the rail-flanges, and the rail-chairs secured to the sides of the plate which forms the body of the yoke, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

SAMUEL GIBSON. [L. S.]

Witnesses:

CHAS. E. KELLY,

C. W. M. SMITH.