

E. E. COLBY.

BRIDGE-PIER.

No. 189,020.

Patented April 3, 1877.

Fig. 1.

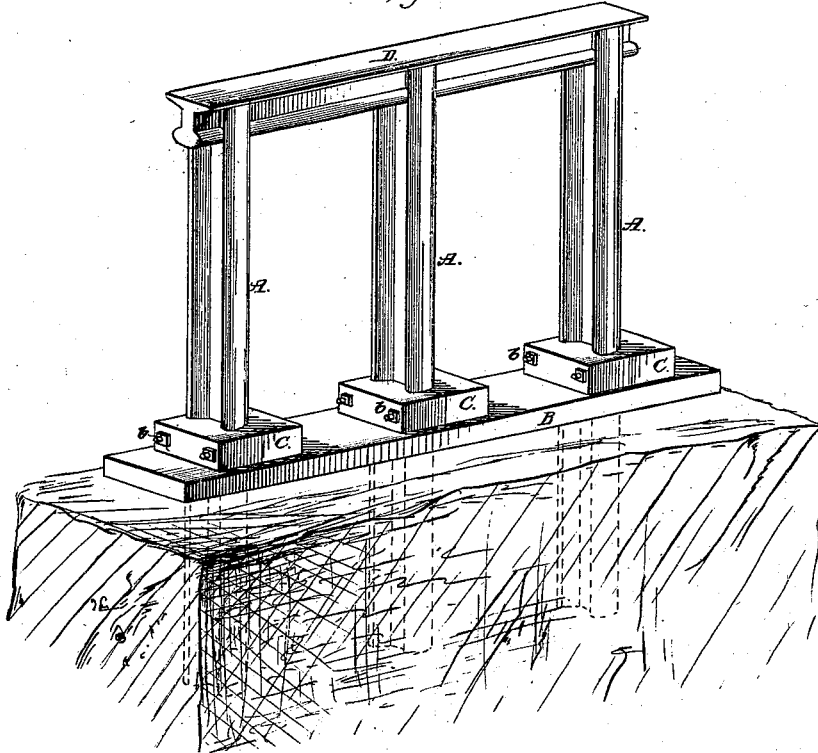


Fig. 2.

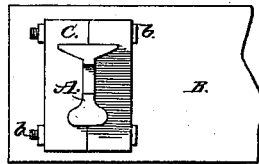


Fig. 3.

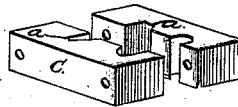
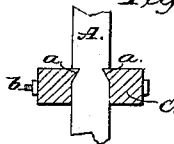


Fig. 4.



Attest:
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UNITED STATES PATENT OFFICE.

ELLERY E. COLBY, OF GROTON, N. Y., ASSIGNOR OF ONE-HALF HIS RIGHT TO OLIVER AVERY, CALEB BARTHOLOMEW, AND CHARLES PERRIGO.

IMPROVEMENT IN BRIDGE-PIERS.

Specification forming part of Letters Patent No. 189,020, dated April 3, 1877; application filed August 11, 1876.

To all whom it may concern:

Be it known that I, ELLERY E. COLBY, of Groton, in the county of Tompkins and State of New York, have invented a new and useful Improvement in Bridge-Piers, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

These piers are made of railroad-rails by driving a series of rails into the ground to serve as piles, which are made to pass through a mudsill, and are capped over with another rail placed horizontally across the tops of the piles.

In the drawing, Figure 1 is a perspective view of a pier constructed according to my invention.

A represents the piles driven into the ground, the parts in the earth being indicated by dotted lines.

A mudsill, B, consisting of a substantial and durable stick of timber, or other suitable material, is embedded in the earth or located on the surface, and through it holes are cut of such shape and size as to conform to the shape of the pile, while allowing the same to be easily inserted, and through these holes the piles are driven into the earth. To regulate the depths to which the piles should be driven, as well as to prevent their settling, projections or stops are firmly attached to the piles at the desired distance from their tops, which rest upon the mudsill. Any kind of solid projection may be used which will answer the purpose; but the best, and the one shown in my drawing, indicated by C, is made as follows, to wit: It consists of two separate sections of cast or wrought iron, each like the other, forming a semi-rectangular plate. These are so constructed that, when placed together, they form a plate of iron with an aperture corresponding in shape to those cut through the mudsill, and tightly fitting the form of the pile. Inside of the aperture of the stops, and on each side, a small lug, *a*, projects, which fits into a notch cut into the pile, and which prevents the stop, when fastened to the rail, from moving. To fasten the stop to the pile, lateral holes extend through the ends of each semi-section corresponding to each other,

through which iron bolts *b* are placed, and the semi-sections of the stop are fastened and tightened around the pile by nuts screwed on to the ends of the bolts.

Two or more piles running through the mudsill, being driven into the earth, are capped as follows: The thin middle part or web of the top end of each driven rail is cut out between the two projections, and another rail, with the head portion notched in the sides at proper distances corresponding to the relative distances of the piles from each other, is inserted, with the broad or base projection up, into the recesses formed in the tops of the piles, thus forming a solid and substantial cap, D.

In the drawing, Fig. 2 is a plan view, showing the upper part of a section of the mudsill B and one of the pile-stops C, with the semi-sections, bolted together, resting upon it, and showing the aperture for the pile.

Fig. 3 is a detail view of the two semi-sections of the stop C detached.

Fig. 4 shows the broad or base projection of a driven pile passing through the stop, and the lugs *a* of the stop fitting into the notches cut into the driven pile.

The foregoing makes a very substantial pier to support bridges or trestle-work.

In the construction of the mudsill I do not confine myself to a wooden sill. Iron may be used instead. The sill may be made by banding or fastening together two railroad-rails, side by side, allowing the driven piles to pass between them.

I do not wish to limit myself to any particular form for a stop-projection, C. Instead of the one herein particularly described, any equivalent may be used, the essential point being that it shall be permanently attached either to the mudsill or to the driven pile, so as to serve to prevent the pile from settling below a given mark.

A pier constructed in the foregoing manner of a single row of driven piles has great strength and solidity, sufficient for ordinary bridges; but for larger and more elaborate structures, where the strain and weights to be borne are greater, the piers may be constructed each having two or more parallel rows of piles running side by side. The mud-

sill serves a double purpose. It not only prevents the piles from settling, but also braces and strengthens them against lateral strains. The crowning-cap D also operates as a lateral brace by the manner in which it locks into the piles upon which it rests. Additional middle lateral braces to the piles or diagonal bracing may also be used, when desired, to increase the rigidity where the distance is very great between the crowning-cap and the mudsill or between the piles.

In some instances it may be impracticable or not advisable to use the mudsill connecting the piles, when a plate-disk, or other suitable projection, C, firmly secured to the driven pile, may be used to resist its settling.

Having described my invention, what I claim is—

1. A pier for bridge or other structures, formed of piles A made of railroad-rails and cross-pieces D, substantially as described.

2. The piles A of railroad-iron, in combination with the mudsill B, substantially as specified.

3. The combination, in a pier, of driven piles, with mudsill B, and stops C C, substantially as specified.

4. In a pier, the cap or cross-piece D, formed of railroad-iron, in combination with a series of driven piles, substantially as specified.

ELLERY E. COLBY.

Witnesses:

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WARREN I. COLLAMER.