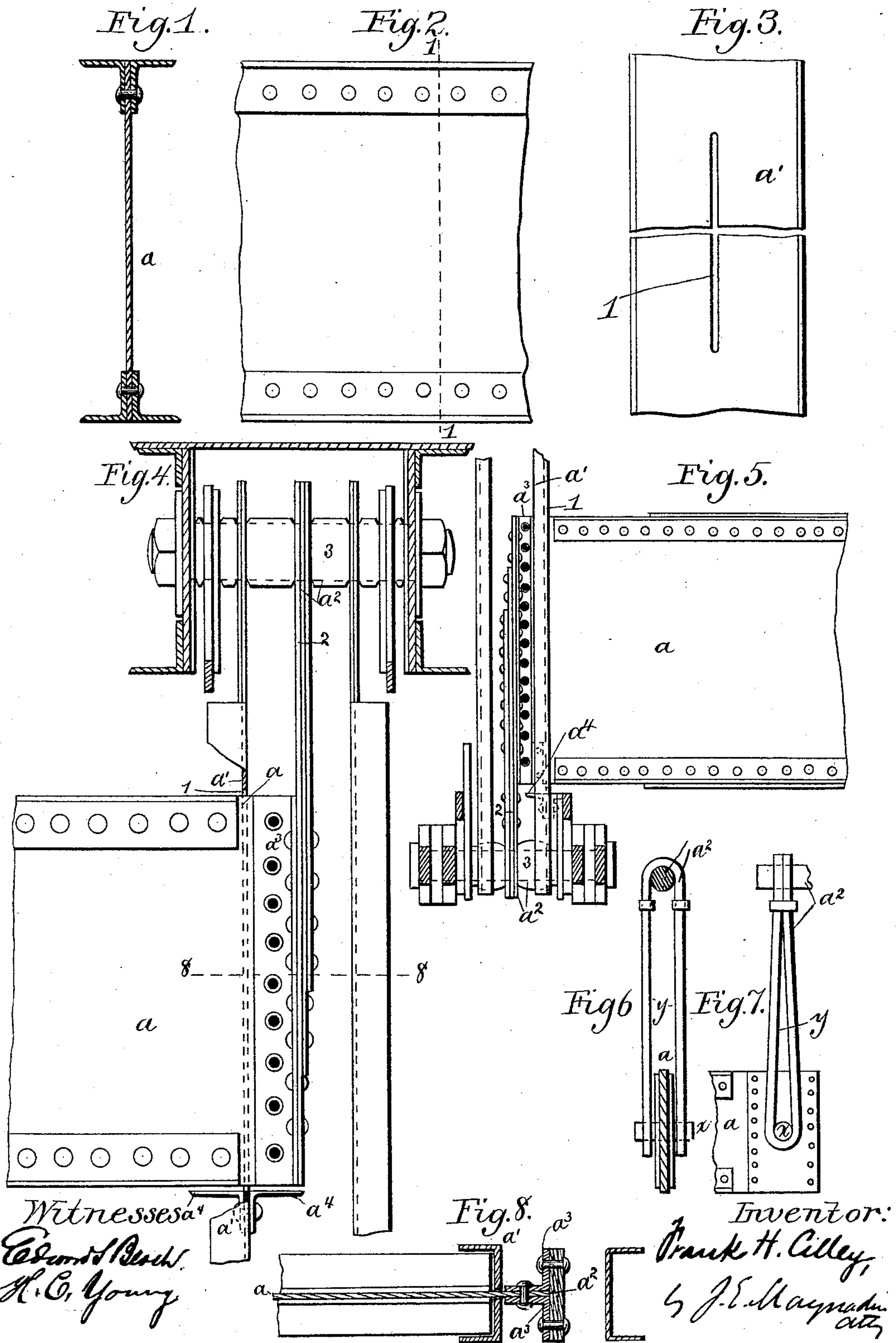


(No Model.)

F. H. CILLEY.
CONSTRUCTION OF METALLIC STRUCTURES.

No. 411,013.

Patented Sept. 17, 1889.



UNITED STATES PATENT OFFICE.

FRANK H. CILLEY, OF BOSTON, MASSACHUSETTS.

CONSTRUCTION OF METALLIC STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 411,013, dated September 17, 1889.

Application filed March 25, 1889. Serial No. 304,583. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. CILLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Construction of Metallic Structures, of which the following is a specification; reference being had to the accompanying drawings, in which—

Figure 1 is a section on line 1 1 of Fig. 2 of one form of beam; Fig. 2, a side elevation of a portion thereof. Fig. 3 is a front elevation of a portion of a post or the like provided with one form of opening to receive the beam. Fig. 4 is a view showing the beam projecting through the opening in the post and a support for the beam, and also showing safety-irons. Figs. 5, 6, and 7 show modifications. Fig. 8 is a view partly in section on line 8 8 of Fig. 4.

My invention consists in the combination of a floor-beam or its equivalent with a post or its equivalent provided with a suitable opening to permit the beam to pass through it clear of the lower wall of the opening, and a beam-support secured to the post.

My invention is particularly useful in pin-bridges with vertical posts, and in the drawings is shown embodied in such a bridge; but my invention may obviously be embodied in other metallic structures.

In the drawings, a is a floor-beam, a' a post, and a^2 a support.

In Figs. 1, 2, 3, and 4 the various parts are of the form and construction preferably employed, and will be readily understood by all skilled in the art without particular description, Fig. 4 showing the parts combined together to embody my invention, beam a passing through the opening 1 in post a' , clearing the lower wall thereof and being supported by the support a^2 , which is shown as made up of a hanger 2 and a cross-piece 3, which is ordinarily a pin, as shown.

In the modification shown in Fig. 5 the part 2 of support a^2 is a strut from a cross-piece 3, ordinarily a pin through the post a' .

In all forms of structures embodying my invention the floor-beam a is normally out of contact with the lower wall of the opening 1 and the load is normally on the cross-pieces referred to. The chief advantages of this construction are that the posts are normally

subject to direct stresses only and are not subject to secondary stresses, and this results, as will be readily understood by all skilled in the art, in a more even distribution of stresses in all the other members of the structure. It is desirable to provide the angle-irons a^3 to give greater security to the structure, and in Figs. 4 and 5 they form the connection between the support a^2 and the beam a , but they may obviously be dispensed with and the support be connected to floor-beam in various other ways, say by a pin x and strap y , as shown in Figs. 6 and 7.

A minor feature of my invention is the combination of the beam, post, and support above explained with one or more safety-irons, which, in case of failure of the support and consequent dropping of the floor-beams, catch and aid in supporting the floor-beams, and also tend to prevent the ends of the floor-beams from slipping out of the opening in the post in case of failure of the supports. These safety-irons a^4 are secured to the post a' , crosswise thereto and below the openings 1, through which the floor-beams a pass. Should a support a^2 fail, and thereby allow a floor-beam to drop, the beam would of course fall against the lower end wall of the opening, and should there then be a spreading of the posts a' the ends of the floor-beam might slip from the openings. The safety-irons a^4 are in effect enlargements of the lower end walls of the openings 1, and will in case of failure of the supports a^2 tend to prevent a collapse from a spreading of the posts a' .

What I claim is—

1. The herein-described combination of beam a , post a' , and support a^2 , the post being provided with an opening to allow the beam to pass through it clear of the lower wall of the opening, all substantially as and for the purpose set forth.

2. The herein-described combination of beam a , post a' , and support a^2 , with a safety-iron a^4 , secured to the post a' , crosswise thereto, substantially as and for the purpose set forth.

FRANK H. CILLEY.

Witnesses:

EDWARD S. BEACH,
JOHN R. SNOW.