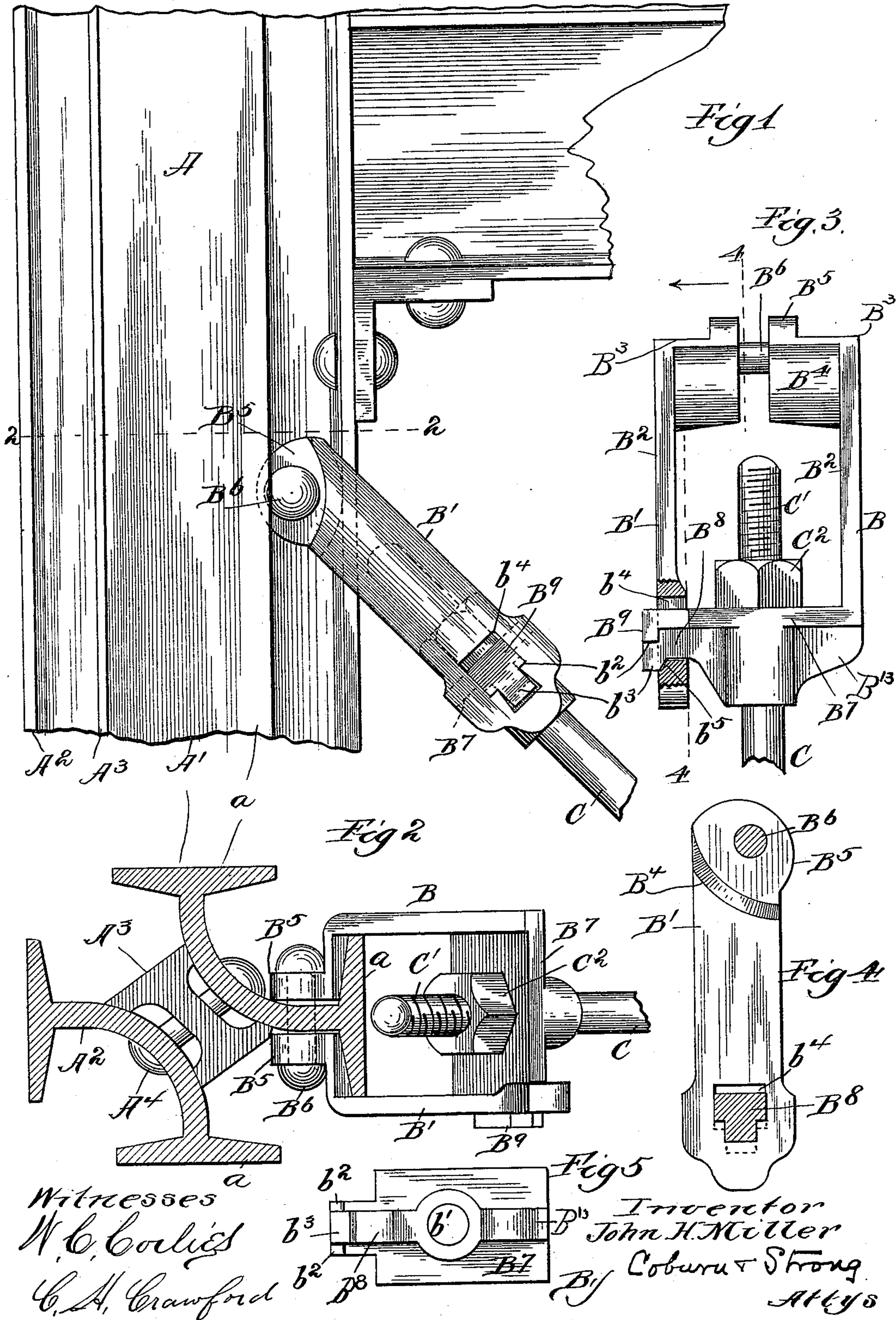


(No Model.)

J. H. MILLER.  
CLEVIS FOR IRON STRUCTURES.

No. 583,537.

Patented June 1, 1897.





# UNITED STATES PATENT OFFICE.

JOHN H. MILLER, OF BATAVIA, ILLINOIS, ASSIGNOR TO THE UNITED STATES WIND ENGINE AND PUMP COMPANY, OF SAME PLACE.

## CLEVIS FOR IRON STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 583,537, dated June 1, 1897.

Application filed December 10, 1896. Serial No. 615,096. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. MILLER, a citizen of the United States, residing at Batavia, in the county of Kane and State of Illinois, have invented a certain new and useful Improvement in Clevises for Iron Structures, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a windmill-tower post with a brace-rod secured thereto by a clevis constructed according to my invention. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a plan view of my said clevis with some parts broken away. Fig. 4 is a vertical section on the line 4 4 of Fig. 3. Fig. 5 is a front end view of my said clevis.

My invention relates to iron structures, and has for its object to provide a clevis adapted to attach the brace-rods to the posts of water-towers and other iron structures, particularly to posts of that form of construction known as the "Larimer column."

According to the construction generally employed hitherto the clevis has been bolted to the tower-post and the brace-rod secured to the clevis by a rivet-head. The brace-rod was tightened by a turnbuckle disposed at some point midway thereof. As a result of this construction the rivet-heads of the brace-rods often snapped off under the contraction and the brittleness of the metal consequent upon cold weather; and, further, the method of attachment of the clevis to the tower-post was defective in that too much strain, in the nature of a shearing stress, was brought upon the attaching-bolts.

My invention is designed to remedy these defects by a construction which will now be specifically described.

Referring to the drawings by letter, A represents a tower-post which is herein illustrated as being of the Larimer-column form, as shown in horizontal section in Fig. 2, and comprising the two bent girders A' and A<sup>2</sup>, joined together by the interposed I-beam A<sup>3</sup> and rivets A<sup>4</sup> in the ordinary manner. Each of the girders A' and A<sup>2</sup> terminates in a double flange a, and it is to such flange that my clevis is adapted to be secured. My said

clevis is of two-part construction. Each of the parts B and B' comprises a side piece B<sup>2</sup> and at one end thereof an end piece B<sup>3</sup>, disposed at right angles thereto and formed with an inner curved bearing-surface B<sup>4</sup>. Each of the end pieces B<sup>3</sup> is provided with a perforated ear B<sup>5</sup>, adapted to receive a rivet B<sup>6</sup>. To the foregoing extent the two parts of my clevis are identical in construction. Integral with the remaining end of the part B, I form a cross-head B<sup>7</sup>, provided with the reinforcing-flanges B<sup>13</sup> and with the perforation b', adapted to receive the end of the brace-rod. The opposite end of the cross-head B<sup>7</sup> is formed with a neck B<sup>8</sup> and head B<sup>9</sup>, the said head being provided with the lips or lugs b<sup>2</sup> b<sup>3</sup>. In the remaining end of the part B' is formed an aperture b<sup>4</sup>, adapted to admit the head B<sup>9</sup> and provided, preferably, with a beveled edge b<sup>5</sup>, against which the lug b<sup>3</sup> is adapted to bear when the neck and head are drawn forward in the aperture.

To explain the operation of my clevis, the construction of which is hereinabove described, the two parts are secured on opposite sides of the web by one of the column-girders, as shown particularly in Fig. 2, by the rivet B<sup>6</sup> passing through the ears B<sup>5</sup> and the said web. The head B<sup>9</sup> passes at the same time through the aperture b<sup>4</sup> and engages therewith in the manner already described. The end of the brace-rod C, threaded as at C', is inserted through the perforation b' of the clevis cross-head and is secured and tightened therein by the nut C<sup>2</sup>. The clevis thus not only attaches the brace-rod to the tower in a manner which obviates the use of a rivet-head for said brace-rod, but also serves as a turnbuckle for adjusting and tightening the said brace-rod. The curved bearing-surfaces B<sup>4</sup> are adapted to contact with and bear against the inner surfaces of the flange a, and thus to relieve the rivet B<sup>6</sup> of all shearing stress, leaving it only the function of holding the two ends of the clevis together. The same curved bearing-surfaces enable the clevis to be given a singular degree of angular adjustment without interfering with its bearing against the said flange. Finally, the lock, by which the two outer ends of the two clevis parts are held together, is held more



firmly as the tension upon the clevis is increased.

It will be seen that several changes may be made in the construction described without departing from the spirit of my invention. I do not limit myself to the specific form shown, therefore; but

What I claim, and desire to secure by Letters Patent, is—

10 1. In a clevis adapted to secure a brace-rod to a tower-post, the two side pieces  $B^2$ ; the end pieces  $B^3$  adapted to bear against flanges upon the said post; means for attaching the said end pieces to the post; the cross-head  $B^7$   
15 integral with one of the side pieces  $B^2$  and adapted to lock with the other side piece; and means for securing the brace-rod to the said cross-head.

20 2. In a clevis adapted to secure a brace-rod to a tower-post, the two side pieces  $B^2$ ; the end pieces  $B^3$  provided with curved bearing-surfaces  $B^4$  adapted to bear against flanges upon the said post; means for attaching the

said end pieces to the post; the cross-head  $B^7$  integral with one of the side pieces  $B^2$  and provided with a head  $B^9$  adapted to lock in an aperture  $b^4$  in the remaining side piece, and further provided with an aperture  $b'$  adapted to receive the end of the brace-rod; and means for securing the said brace-rod in the said aperture.

3. In a tower, the tower-post  $A$  carrying flanges  $a$ ; a clevis comprising the side pieces  $B^2$ , the end pieces  $B^3$  adapted to bear against the flange  $a$ , means for securing the end pieces to the said post; the cross-head  $B^7$  provided with an aperture  $b'$  integral with one of the side pieces  $B^2$  and provided with means adapted to lock the same with the remaining side piece; and the brace-rod  $C$  provided with the threaded end  $C'$  passing through the aperture  $b'$ , and the nut  $C^2$ .

JOHN H. MILLER.

Witnesses:

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