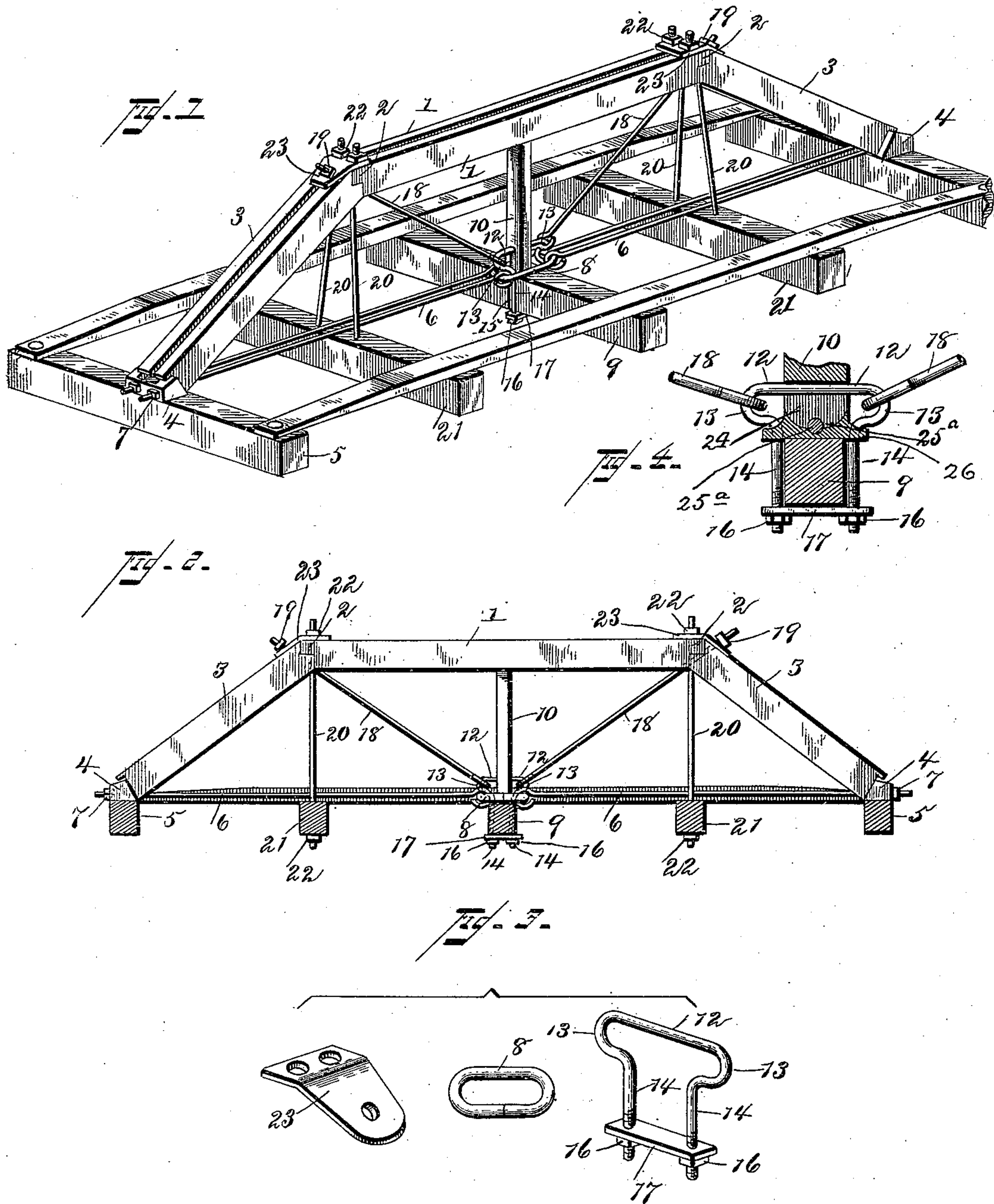


(No Model.)

M. C. FRITS.
BRIDGE.

No. 446,339.

Patented Feb. 10, 1891.



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UNITED STATES PATENT OFFICE.

MILTON C. FRITS, OF LA HARPE, ILLINOIS.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 446,339, dated February 10, 1891.

Application filed September 8, 1890. Serial No. 364,346. (No model.)

To all whom it may concern:

Be it known that I, MILTON C. FRITS, a citizen of the United States, and a resident of La Harpe, in the county of Hancock and State of Illinois, have invented certain new and useful Improvements in Bridges; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to 5 which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in 15 bridges of that class for which Letters Patent were granted to me March 4, 1884, No. 294,606.

The present invention is designed as an improvement upon the invention disclosed in 20 said Letters Patent, the object being to simplify the construction and arrangement, whereby a cheaper and stronger structure is provided and one which will possess advantages which will be apparent to those skilled 25 in the art.

The invention consists in the novel construction and combination of parts herein-after more fully described, and specifically pointed out in the claims.

30 In the accompanying drawings, Figure 1 represents a perspective view of one of the spans of a bridge constructed according to my invention. Fig. 2 is a sectional view of the same. Fig. 3 is a detail view of the 35 devices for securing the horizontal and diagonal stay-rods and the vertical upright or beam. Fig. 4 is a detail sectional view.

In the said drawings, the reference-numeral 1 designates two horizontal beams 40 which rest side by side with a small space between. At each end these beams are formed with shoulders 2, which engage with similar shoulders on the diagonal struts 3, the lower ends of these struts resting in shoes 4, secured 45 to the cross-pieces 5 or to the bridge-abutments. The beams 1 form the truss-beams. The shoes 4 are connected together by means of the horizontal rods 6, the outer ends of which pass through said shoes when they are 50 screw-threaded and provided with retaining-nuts 7. These rods terminate at or about the

center of the span where they are connected with a link 8, resting upon the cross-beam 9 and embracing an upright 10. The lower end of this upright rests upon the cross-beam 9, 55 and it extends upwardly to and supports the cross-beams 1. Passing through an aperture in the lower end of upright 10 is a clip 12, bent outwardly to form loops 13. The arms 14 of this clip rest in grooves 15 in the cross- 60 beam 9, and depend downwardly with their ends screw-threaded to receive nuts 16. A plate 17 provided with apertures for the passage of arms 14 rests upon the bottom of cross-beam 9, being retained in place by 65 means of the nuts 16. By this means the cross-beam and upright are securely connected together. Connected at one end with the loops 13 of the clip 12 are the diagonal brace-rods 18, secured at their other ends to 70 the diagonal struts by means of nuts 19.

The numeral 20 designates vertical rods passing through the truss-beam and also through cross-beams 21 similar to beam 9, which with said latter beam form the sup- 75 ports to which the floor or decking of the bridge is secured. These rods 20 are secured by means of nuts 22, and at their upper ends are provided with a plate 23, through which they pass, said plate resting upon the ends 80 of the truss-beam and the diagonal struts. The diagonal stay or brace rods 18 also pass through apertures in plates 23.

By the above construction a very strong and efficient bridge is produced, which pos- 85 sesses many advantages over similar structures now in use.

For the purpose of affording a better support for the lower end of the upright 10, I provide said end with a metal shoe 24, which 90 is secured thereto in any suitable manner. This shoe is rounded on its under side, and is provided with a transverse groove or notch 25, which engages with a pin 25^a, secured to the floor-beam above the plate 26, which rests 95 in a recess in the cross-beam 9. By this means the upright is securely held in place and prevented from accidental displacement.

Having thus described my invention, what I claim is—

1. In a bridge, the combination, with the notched truss-beams, the notched struts, the

vertical rods, and the floor-supports, of the horizontal rods connected with the shoes and with a link, an upright, a clip having loops connected with said upright and with one of 5 the floor-supports, and diagonal brace-rods connected with the struts and with the loops of the clips, substantially as described.

2. In a bridge, the combination, with the notched truss-beams, the notched struts, the 10 vertical rods, and the floor-supports, of the horizontal rods connected with the shoes and with a link, an upright having a rounded shoe secured to its lower end, a clip connected

with said upright and with one of the floor-supports, diagonal brace-rods connected with 15 the struts and with the clips, and a notched plate resting upon said floor-support with which the shoe on the upright engages, substantially as described.

In testimony that I claim the foregoing as 20 my own I have hereunto affixed my signature in presence of two witnesses.

MILTON C. FRITS.

Witnesses:

ED. GILLET,
ZERAH KERN.