Plate I.

116787

ALBERT FINK'S IMPROVEMENT IN BRIDGE TRUSSES.

PATENTED JUL 41871

Fig.1.

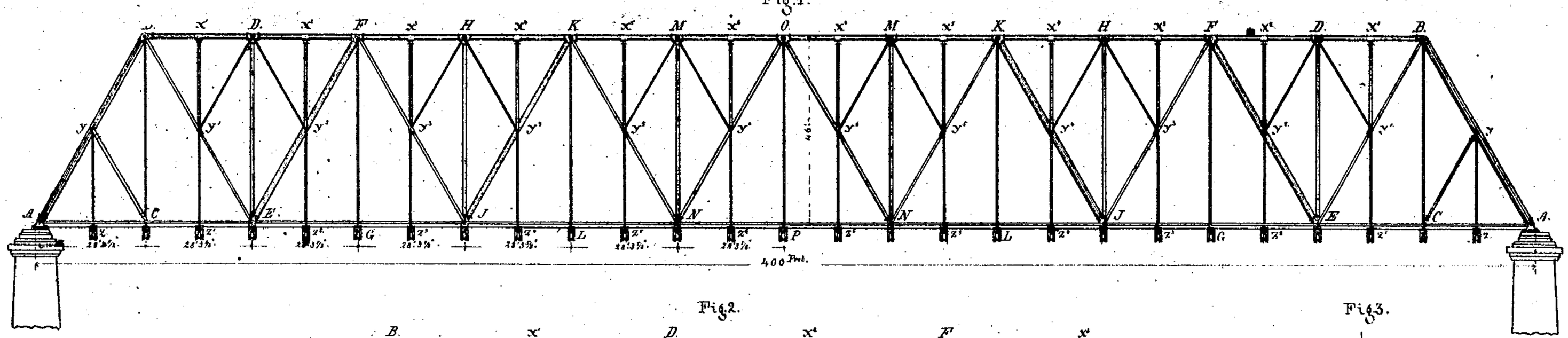


Fig.2.

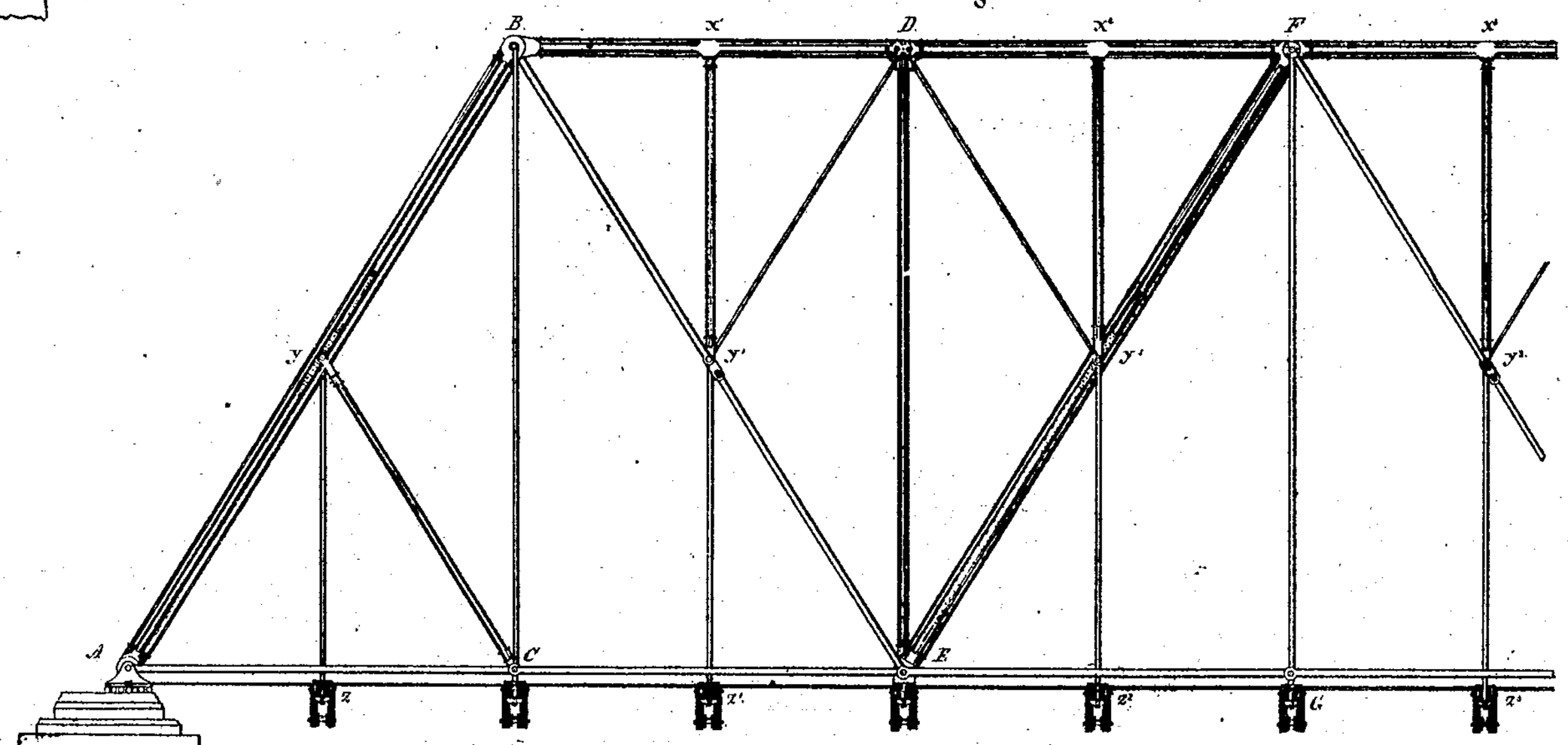
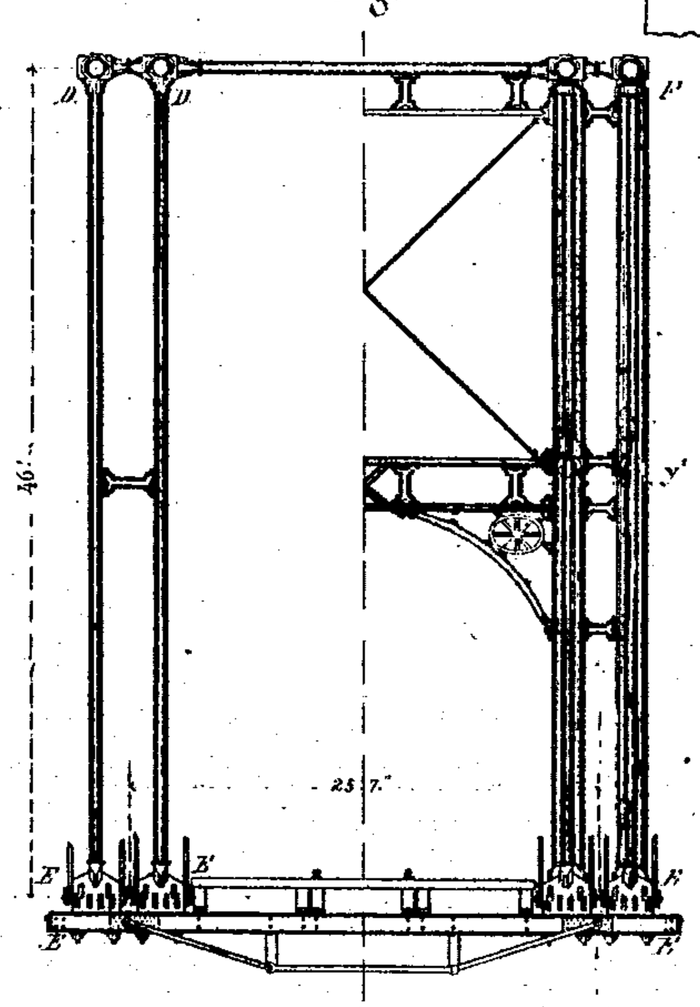


Fig.3.



Wilnesses:

Fig.1.

Figs.2&3.

Jnventor.

Plate II.

Albert Fink's improvement in Bridge Trusses.

Fig.7.

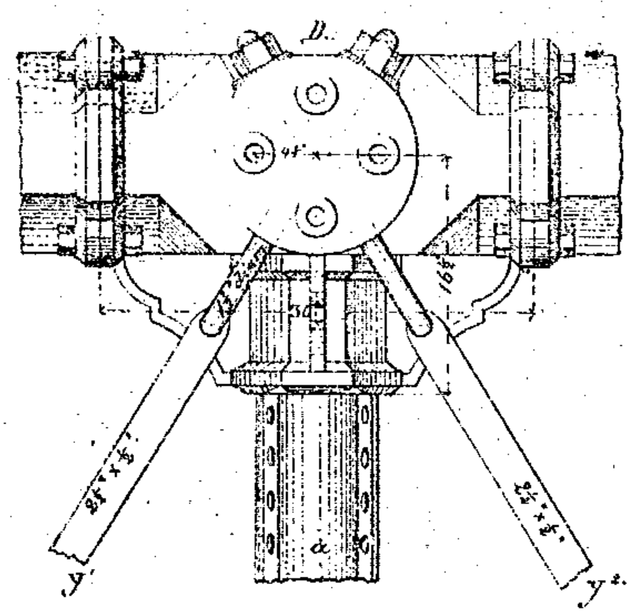


Fig.10.

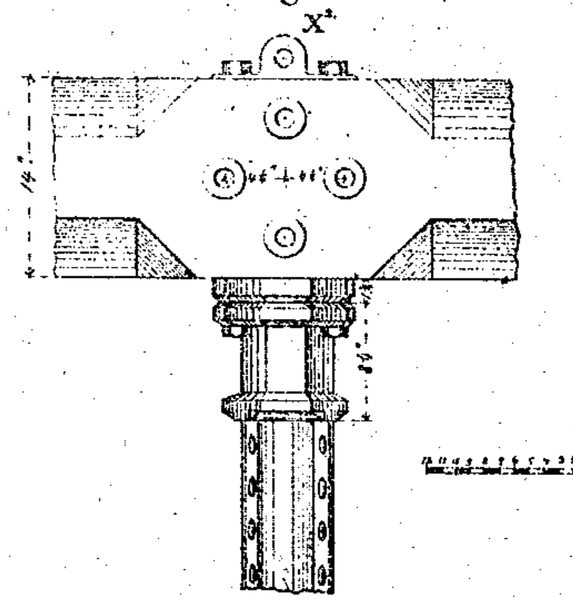


Fig.12.

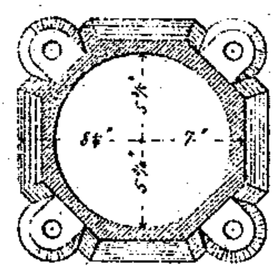


Fig.13.

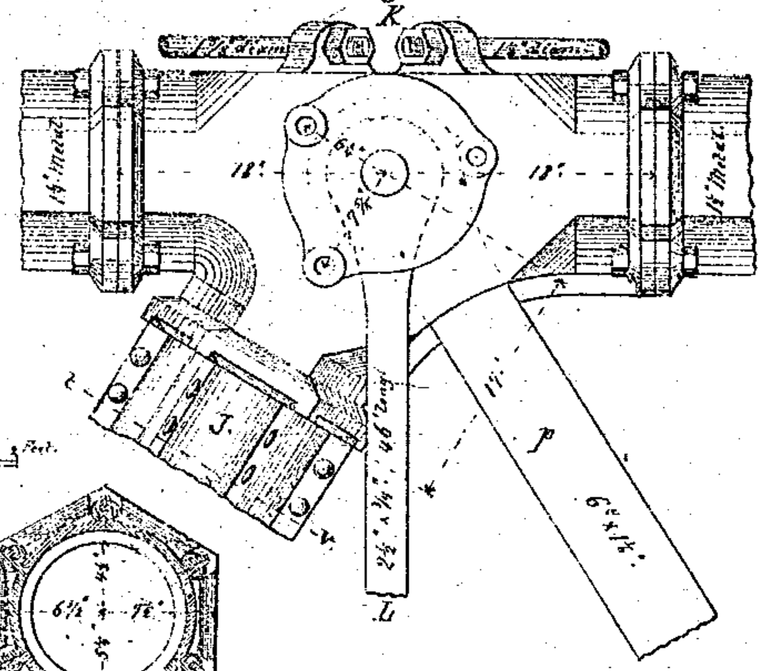
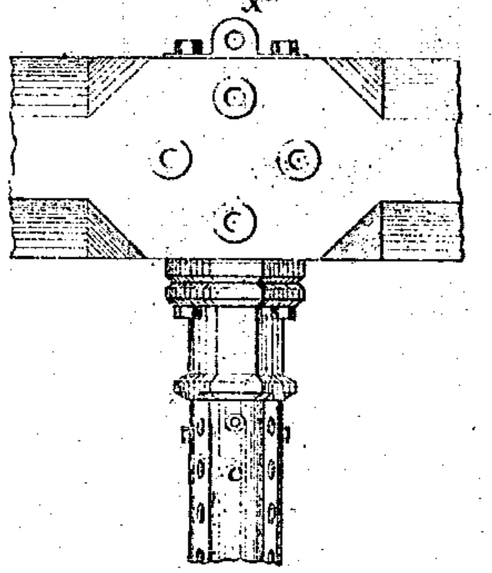


Fig.16.



Scale 1 in: 14 inches.

Fig.17.

Fig.18.

Fig.9

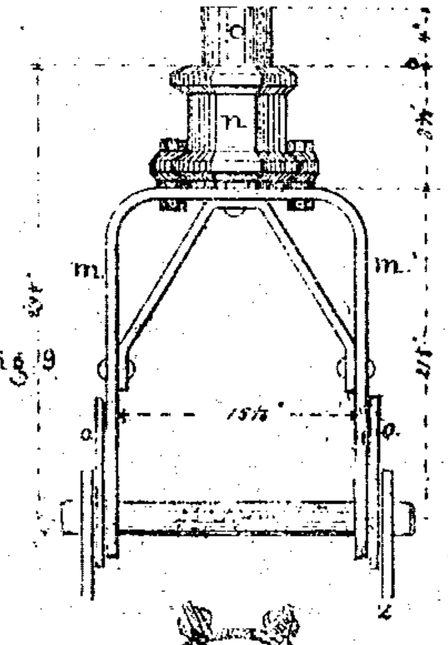


Fig.11.

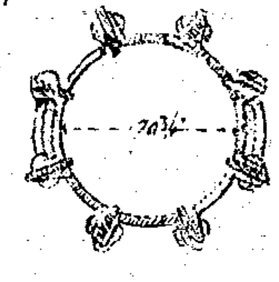


Fig.8.

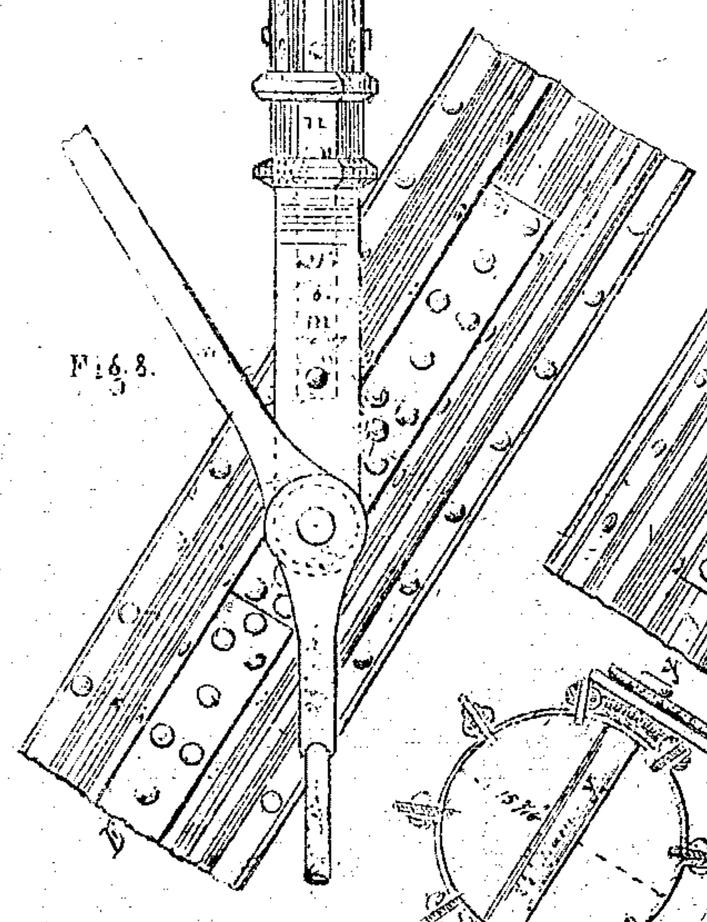


Fig.5

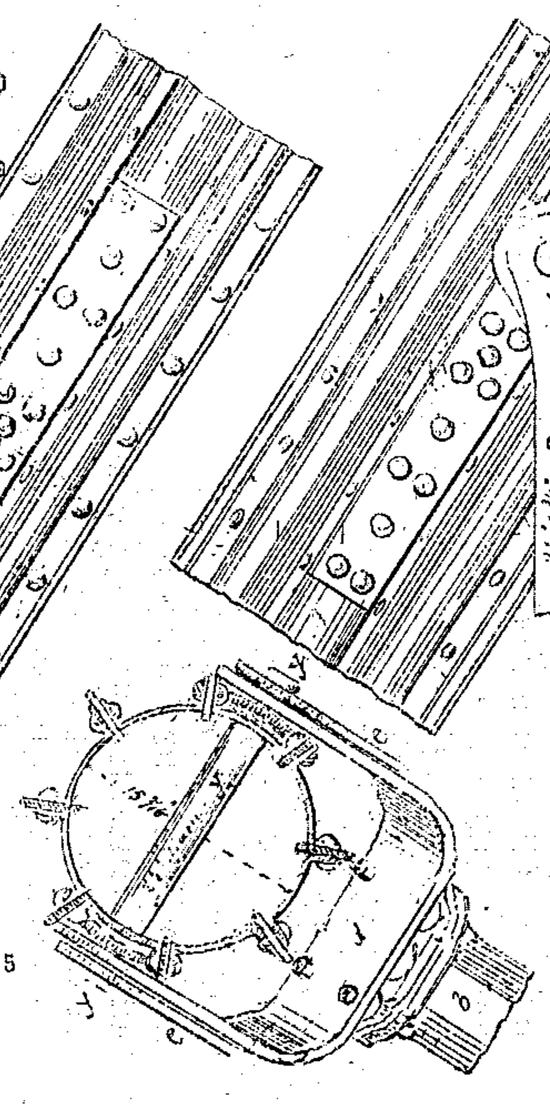


Fig.4.

Fig.15.

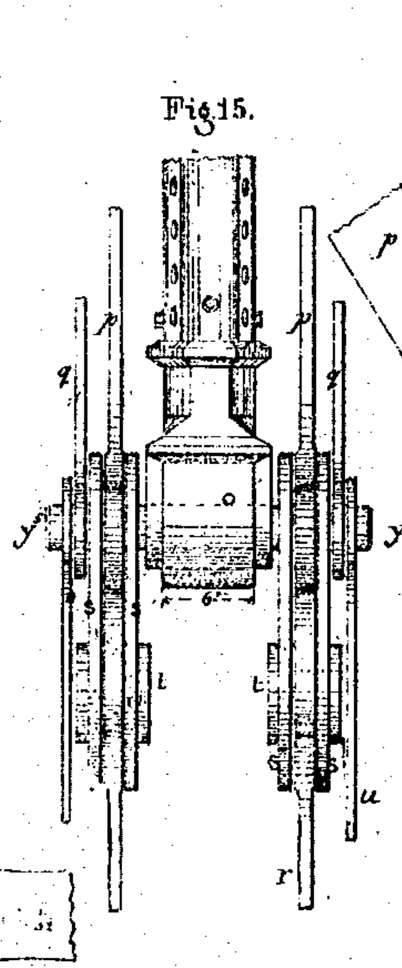
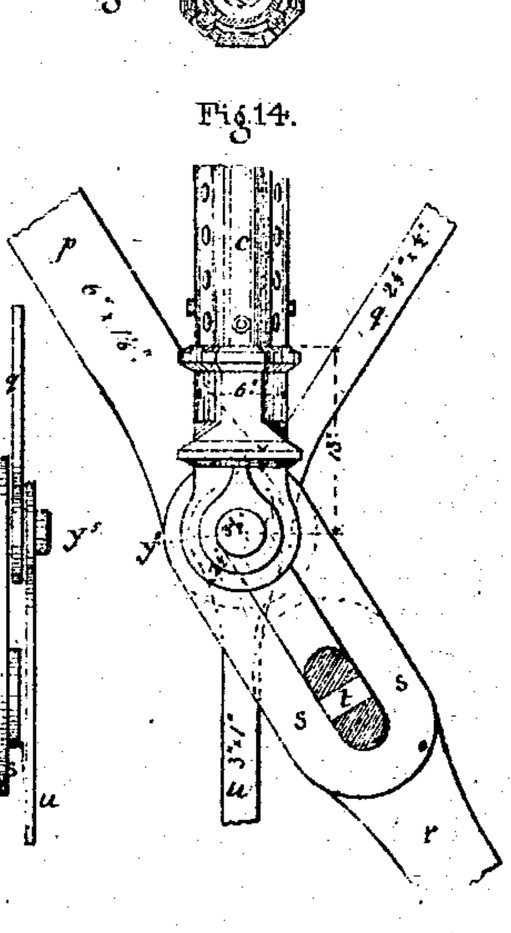


Fig.14.



Witnesses

Inventor:

116,787

UNITED STATES PATENT OFFICE.

ALBERT FINK, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN BRIDGE-TRUSSES.

Specification forming part of Letters Patent No. 116,787, dated July 4, 1871.

To all whom it may concern:

Be it known that I, ALBERT FINK, of Louisville, Jefferson county, Kentucky, have invented an Improvement in Bridge-Trusses; and I hereby declare that the following is an exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The object of my invention is to obtain a simple and effective plan for bridges of long spans. The following description will enable others skilled in the art of bridge-building to understand my invention.

PLATE I.—Figure 1 represents the plan of a bridge of four hundred (400) feet span, as recently constructed over the Ohio river at Louisville, Kentucky. The parts indicated by the letters AB BC BE ED EF FG FJ JH JK KL KN NM NO OP constitute, in connection with the lower chord AA and upper chord BB, the usual plan of a truss, generally known in this country as the triangular truss or V-truss, and which plan has been in use for some time in this country and in England, and is well adapted for bridges of a length not exceeding two hundred or two hundred and fifty feet. When the length of the span exceeds this, I propose to introduce auxiliary trusses (and in this consists my improvement) in the usual triangular truss, between the points supported, as indicated above. These auxiliary trusses are indicated by the following letters: AyCz By^1Dx^1 Dy^2Fx^2 Fy^3Hx^3 Hy^4Kx^4 Ky^5Mx^5 My^6Ox^6. In this way the additional floor-beams z z^1 z^2 z^3 z^4 z^5 z^6 are supported; also the intermediate points of the upper chord, indicated by the letters x^1 x^2 x^3 x^4 x^5 x^6, enabling us thus to adapt the usual plan of a triangular bridge for double the length of span. Fig. 2 represents an enlarged plan of part of the truss. The same letters are used to indicate the same parts as in Fig. 1. The new parts which are introduced in the common triangular truss, and which constitute the improvement, are the following: The strut or brace Cy, the suspension-rod yz. The lower part Ay of the brace AB, and the brace Cy, in connection with the lower chord AC, and the suspension-rod yz from the first auxiliary truss which supports the floor-beam z. The second auxiliary truss is formed by the tension-rod Dy^1, the tension-rod By^1, (which latter forms a part of the main tension-rod BE,) and the post x^1 y^1. The third auxiliary truss is formed by the tension-rod Dy^2, the lower part Ey^2 of the brace EF, and the post y^2 x^2. The fourth auxiliary truss, Fy^3H, (see Fig. 1,) and the sixth, Ky^5M, are formed in a similar manner as the second; and the fifth auxiliary truss, Hy^4K, and seventh, My^6O, are formed in the same way as the third. Fig. 3 is a cross-section of the bridge. The left half shows the double posts ED, and the right half the double braces EF, and also the cross-connection between the two sides of the bridge. The lower and upper chords, and all braces on each side of the bridge, are made in pairs—that is to say, each side of the bridge consists of two separate trusses, as shown in Fig. 1, bolted together, and then connected with the two trusses on the opposite side. This arrangement, however, does not form an essential part of my improvement, as a single truss can be used instead of a double one, if desired.

PLATE II.—On this plate the connections of the various parts forming my improvement are shown in detail on an enlarged scale.

Figs. 4 and 5 show the connection of the strut or brace Cy (see Figs. 1 and 2, Plate I) with the main brace AB at the point y. Fig, 6 shows the connection of the same brace with the lower chord at C, (see Figs. 1 and 2, Plate I.) a a is a wrought-iron hollow cylinder. b and c are cast-iron shoes. d is a piece of wrought-iron, shaped as shown in Figs. 4 and 5, and which connects the strut or brace Cy (see Figs. 1 and 2, Plate I) with the pin y, which goes through the main brace AB. A cross-section of this main brace is shown in Fig. 5. The suspension-bar yz supports the floor-beam z. (See Plate I.) f is the suspension-bar, marked in Plate I, Figs. 1 and 2, as CB. g is a suspension-link, on which the floor-beam h h is supported. i is a casting connecting the floor-beams h h with the bottom chord Kl. Only the upper flanges of the floor-beam are shown in this drawing. Fig. 7 shows the part of the chord at D. Figs. 8 and 9 show the part of the brace EF at the point y^2, and the connections of tension-bar Dy^2 and post x^2 y^2. Fig. 10 shows the part of the upper chord at x^2. Fig. 11 is a cross-section of the brace EF. Fig. 12 is a cross-section of the upper chord. Fig. 13 shows the part of

the upper chord at K. Figs. 14 and 15 show the connection at point y^5. Fig. 16 shows the part of the upper chord at x^5. Fig. 17 shows a cross-section of the brace JK. Fig. 18 shows a cross-section of the post $x^5\ y^5$.

The letters here mentioned in explanation of Figs. 4 to 18 also refer to the Figs. 1 and 2, Plate I, and the parts shown in Plate II will be readily recognized with reference to the letters in Plate I. I do not, however, wish to confine myself to any particular arrangement of the details of constructing the auxiliary trusses, or to any particular combination of material of which the trusses may be built; but

What I claim as my invention, and wish to secure by Letters Patent, is—

The auxiliary trusses (supporting the intermediate points $y\ y^1\ y^2\ y^3\ y^4\ y^5\ y^6$) in an ordinary triangular truss, substantially as described in the above specification.

ALBERT FINK.

Witnesses:
J. W. MANSUND,
P. P. HUSTOR.