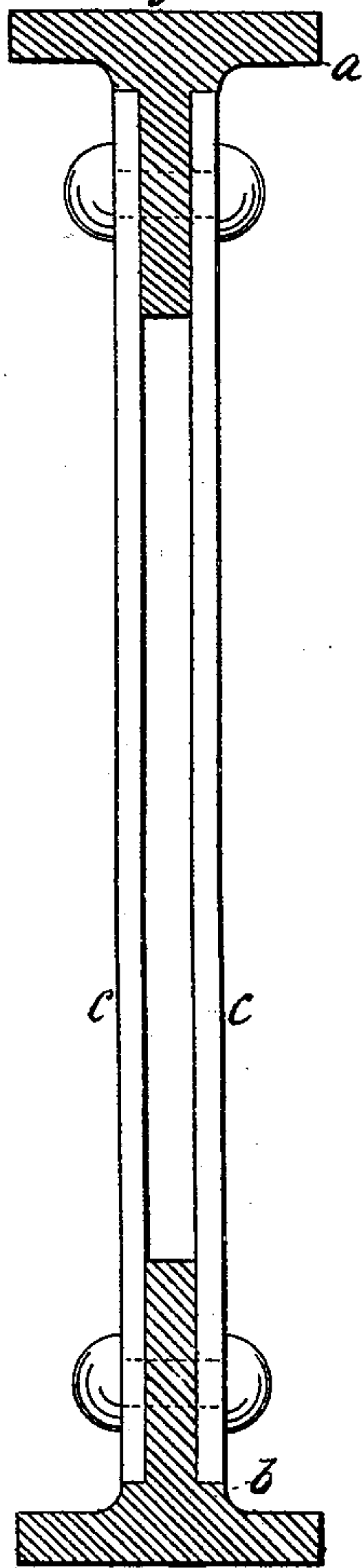


A. Pollak
Bridge Girder & Beam.

No 13,025.
Fig. 2.



Patented Jun. 5, 1855.
Fig. 1.

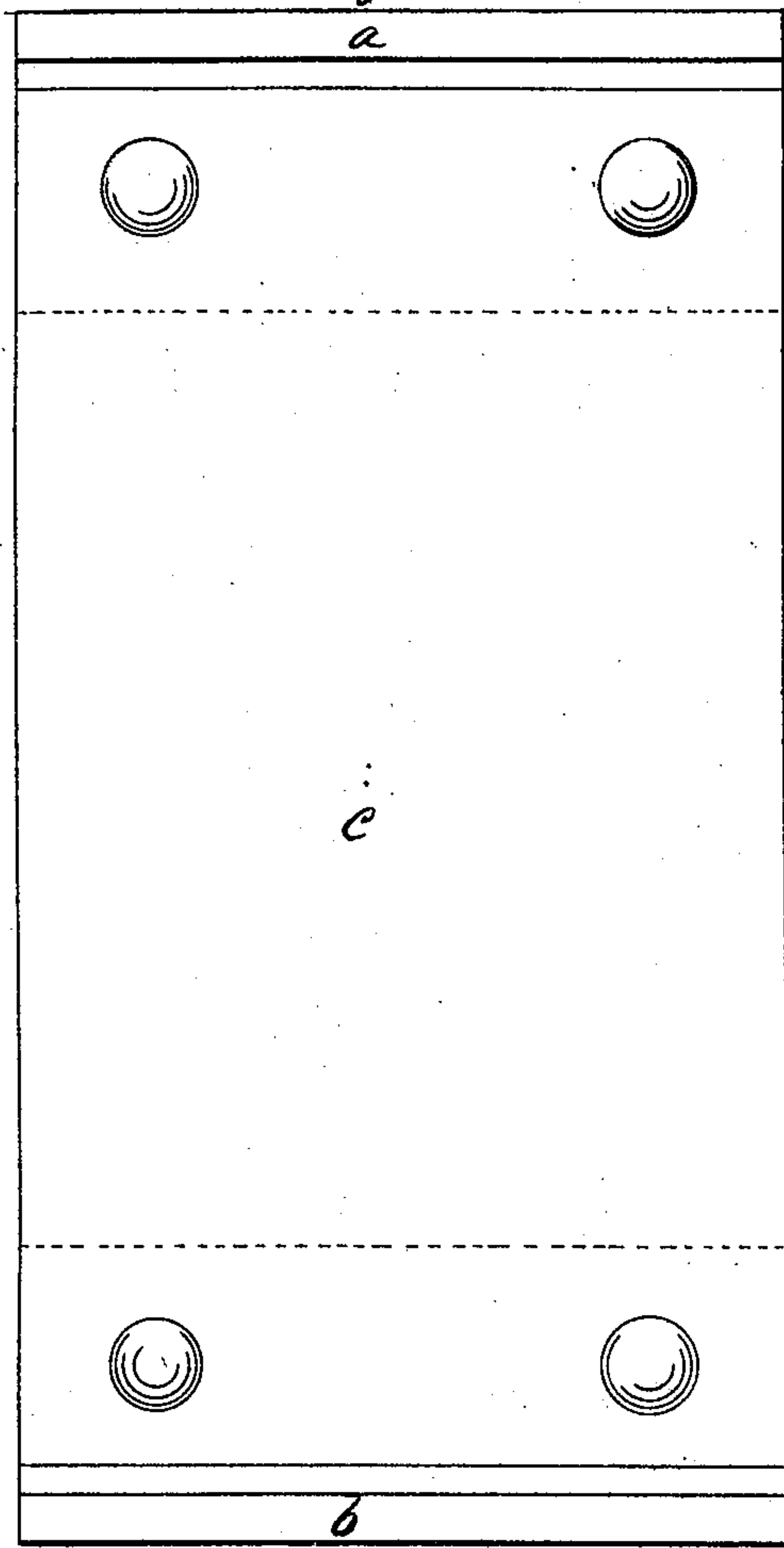


Fig. 4.

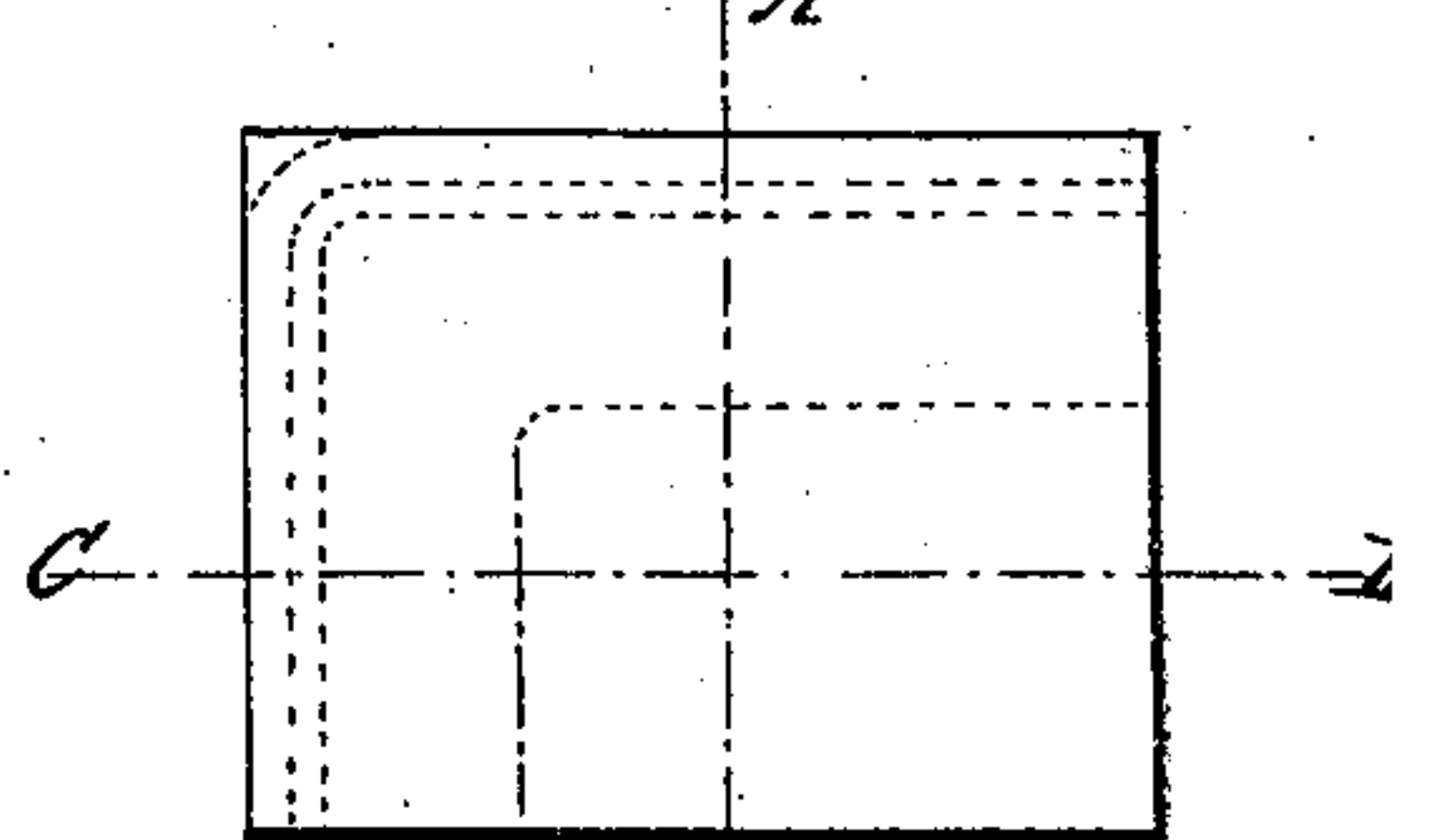
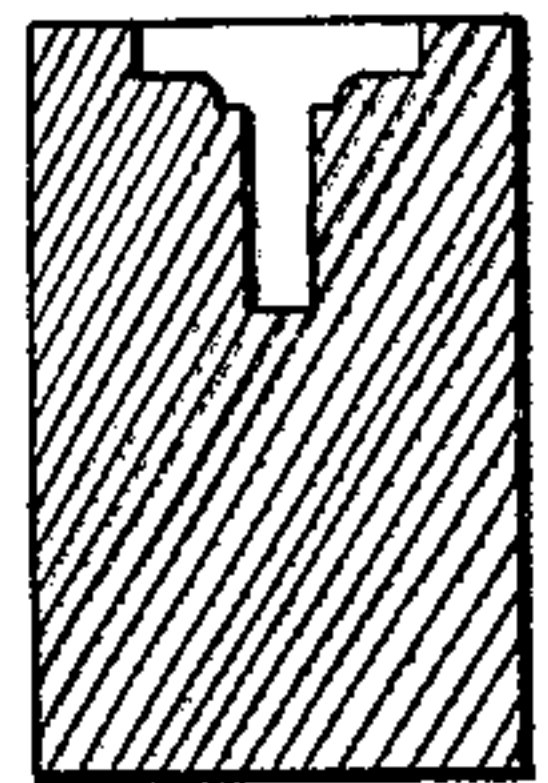
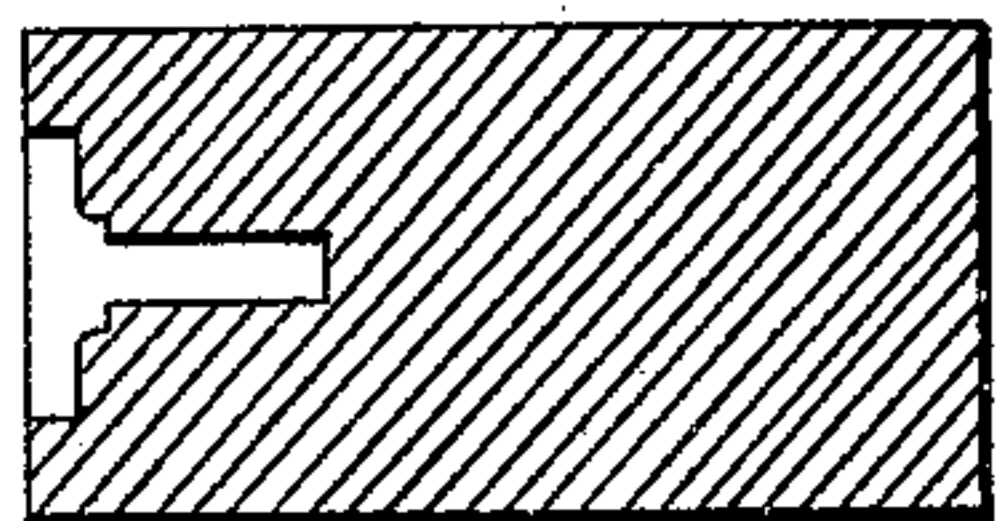


Fig. 5.



Section at A. B.

Fig. 6.



Section at C. D.

Fig. 3.

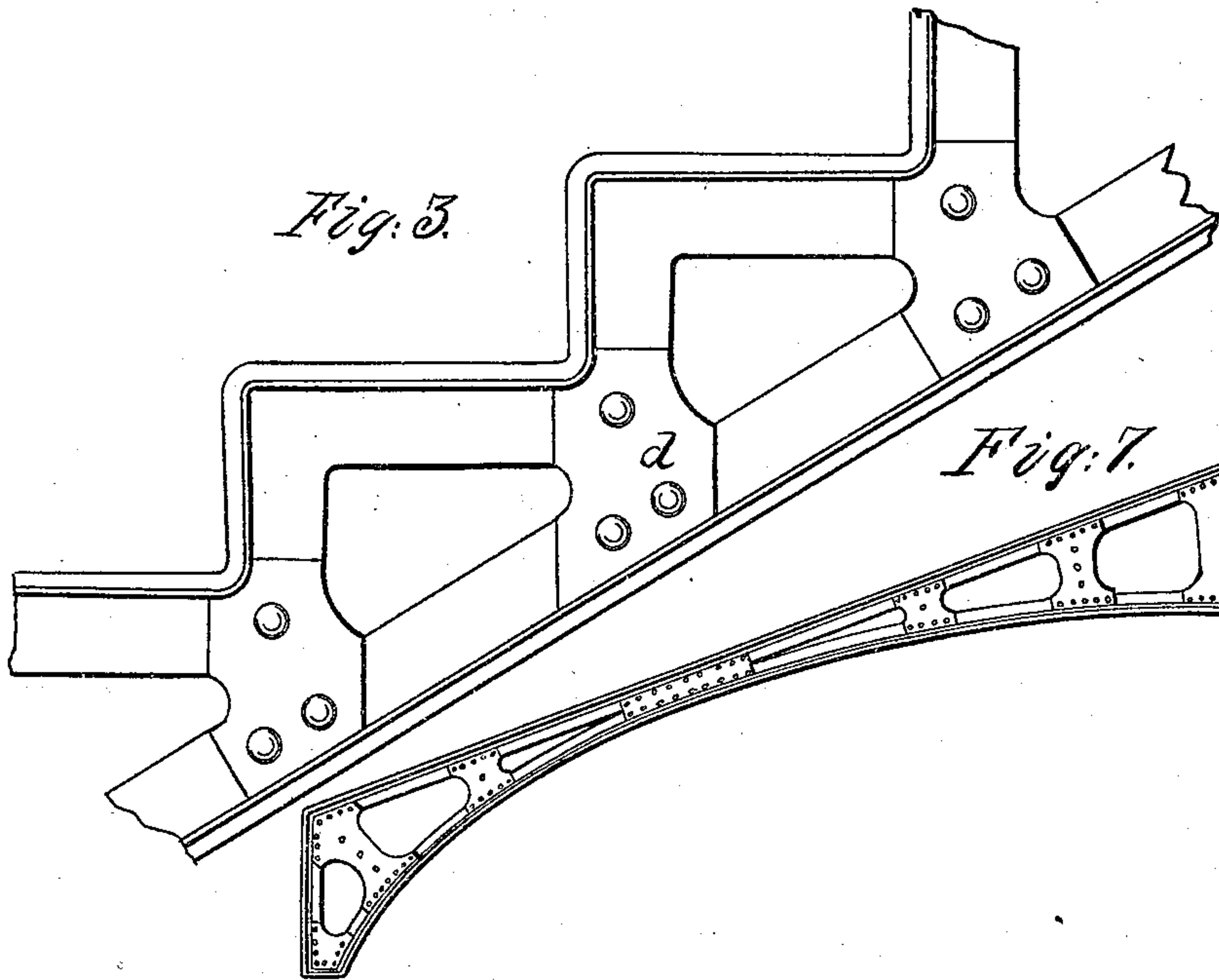
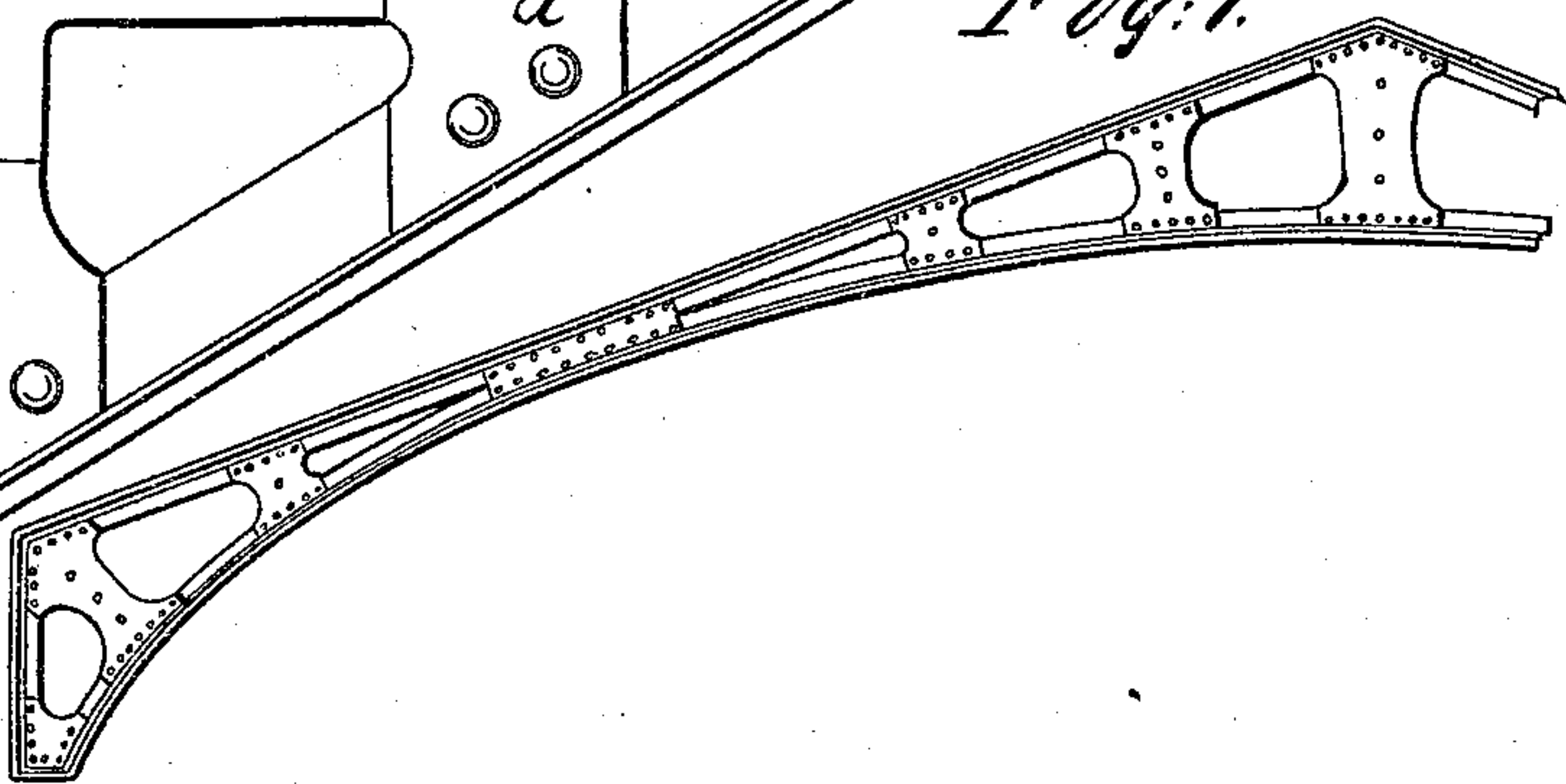


Fig. 7.



UNITED STATES PATENT OFFICE.

ANTHONY POLLAK, OF PHILADELPHIA, PENNSYLVANIA.

WROUGHT-IRON BEAM OR GIRDER.

Specification of Letters Patent No. 13,025, dated June 5, 1855.

To all whom it may concern:

Be it known that I, ANTHONY POLLAK, of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wrought-Iron Beams or Girders; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a portion of a side view of a girder constructed upon my plan; Fig. 2, a transverse section of the same; Fig. 3, an elevation of a portion of a stairway; Fig. 4, an elevation of a cast iron block used in bending the string bar of the stairway; Fig. 5, a section of Fig. 4 in the line A, B; Fig. 6, a section of Fig. 4 in the line C, D, and Fig. 7 an elevation of a roof frame.

The letters of reference indicate the same parts in the different figures wherever they occur.

The nature of my invention consists in certain improvements in the form, construction, and combination of parts, of wrought or malleable iron beams, or girders, as hereinafter described, whereby I obtain greater strength and stiffness from a given quantity of material, than is found in any form or combination now used.

The top and bottom of the girder are formed by rolled T pieces *a* and *b*, the sectional form of which is shown in Fig. 2. They may be described as each consisting in its section of a vertical stem, and horizontal cross piece or flanges with the inner angles rounded off for the purpose of giving strength, and the stem rabbeted on both sides sufficiently to leave shoulders corresponding to the thickness of the two side pieces *c*. The flanges constitute respectively the top and bottom of the girder, their stems presented toward each other.

The sides of the girder are formed of long plates of rolled iron (*c*) placed longitudinally in the rabbets on both sides of the stems of the top and bottom pieces, and are there secured by rivets passing through the

stems and both plates, at proper distances. Thus forming a compound girder or beam combining in its form the advantages of the rectangular tube and double T girders, two forms ascertained by the experiments of Fairbairn and Hodgkinson to be superior to any others then in use. These I have combined in one, which possesses the qualities of the former to resist lateral strain and of the latter to sustain vertical pressure.

Where the load is not distributed uniformly upon the girder, but is placed at intervals thereon, those points only need to be united by plates. For instance as in fire-proof floors where the beams resting upon the girders are inter-arched, only a tensile strain exists in the intermediate spaces, there, the plates may be advantageously omitted.

The combination above described may be applied to iron stairways as shown in Fig. 3 where the upper T piece is bent to receive the steps and risers, and the lower one being straight forms the tie bar, they are then united at the points where the string bears upon the tie by the plates *d*, and securely riveted thereto. Fig. 3 also shows several forms of plates which may be used. The strings may be conveniently bent while hot upon grooved blocks shown in Figs. 4, 5, and 6. Fig. 7 shows another modification as applied to roof frames, no other tie being required than that produced by the connection of the sides and T plates.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

The combination in wrought or malleable iron beams or girders, of top and bottom T pieces with flat or plane surfaced longitudinal plates, riveted upon both sides of the stems or vertical portions thereof, substantially as described, and for the purposes specified.

In testimony whereof I have hereunto signed my name this 8th day of May 1855.

A. POLLAK.

Witnesses:

JNO. D. BARCLAY,
CHAS. EVERETT.